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Volume 25 June, 1935 Number 6

Serving the Public for Health

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Diphtheria Immunization

Sixty-Fourth Annual Meeting, Milwaukee, October 7-10, 1935
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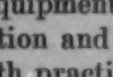

The American Public Health Association

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American Journal of Public Health
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Volume 25 June, 1935 Number 6

Serving the Public for Health*

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Health Commissioner, Detroit, Mich., and Member of Board, W. K. Kellogg Foundation, Battle Creek, Mich.

IT is the obligation of all public health administrators to provide, in an efficient and economical manner, the means of health protection, and at the same time stimulate an interest in the promotion of positive health habits. There are many health officers who will agree with the statement that the participation of all physicians and dentists in the public health and medical services of the community will result in advantages to the individual, the public, and to the health service of the community. There is existent in every area, whether urban or rural, a potential reservoir of medical knowledge and service which can be activated to serve the local health needs. By stimulating these resources, which have lain dormant among the practising physicians and dentists, the spirit of health education can be made to permeate every home and provoke a response on the part of the conscientious parents so that they will do their share to secure modern health benefits for their children.

It is my intention to discuss certain studies which have been carried on during the past several years in the administrative field for the purpose of increasing the active participation of practising physicians. There is nothing in these studies which detracts from the essentialness of a properly organized local public health service—preferably a whole-time health service with a full-time health officer assisted by adequately trained health educators, public health nurses, technicians, and other personnel which we all recognize as essential to modern health service. Such a health department should be blessed with reasonable financial support and should be organized with the political independence repeatedly recommended by the American Public Health Association, and so admirably emphasized by the Committee on Public Health Organization of the White House Conference on Child Health and Protection. It is axiomatic that the first essential of a program of medical participation is the existence of a properly organized modern public health department.

It is equally important to bear in mind that a program of medical participation should not be limited to one line of approach. It should not be considered merely an effort to secure the

* Read before the Health Officers Section of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 3, 1934.

protection of all susceptible children against diphtheria, nor should it be an undertaking restricted to the search for the early case of tuberculosis. It should be recognized that the program is broad in its conception and in its application. It should embrace the gradual incorporation into private medical and dental practice of all those services of a preventive character which, in the final analysis, are available only at the hands of the duly licensed professional man. Diphtheria protection has frequently been the first objective in the program, but the administrator should remember that the same principles of procedure apply to smallpox and typhoid fever immunizations; to the provision for the annual health examination; to the search for the early signs of departure from normal health which may indicate tuberculosis, cancer, and heart disease; to the diagnosis, treatment, and control of syphilis; to the provision for health examinations and the promotion of health education among those groups who because of their occupation may prove a particular hazard to public health; and especially to the general promotion of hygienic living habits and the relief of the individual from the physical and mental handicaps which may, if neglected, deprive him of the full enjoyment and maximum utilization of his life.

The studies in Michigan and elsewhere have unfortunately become known primarily as an effort to provide diphtheria immunization, in spite of the fact that from the very beginning we have repeatedly emphasized that this is a program which we hope will ultimately provide a well-rounded health service at the hands of the family physician in coöperation with the health department. The by-products which will gradually develop are more valuable than the initial objective.

It should also be borne in mind that a program which involves the gradual transfer to the physician's office of some of these services, which in the past have been maintained directly by the health department in clinics, health centers, and dispensaries, cannot be placed in full operation in a short time. It is not a program of a few weeks or even a few months; it is a program of several years. It involves a change of attitude on the part of the administrator, the physician, the organized medical society, and the public. It is not a program which is revolutionary in character. It is the gradual evolution of a procedure embracing the practice of preventive as well as curative medicine by the family physician.

The program involves a three-cornered understanding between the professional group, the local health agency, and the public. The first essential is to prepare the medical profession. It is both reasonable and practical that the professional group should be represented by its organized society, usually the county medical society, which may function through its duly authorized public health committee, this committee's action regularly reviewed and approved by the council and officers of the society. There should be recognition on both the part of the medical society and the health department that they have a common objective—to provide adequate and efficient service for the public. The holding of regular periodic meetings by the public health committee at which there is generous representation from the health department staff, not only establishes a close harmonious relationship but provides a workable administrative unit. The health department should serve as the executive unit to place in operation the plans as developed and adopted by both agencies. Neither the county medical society nor the health department can function with maximum efficiency without the support of the other group.

The medical profession must be pre-

pared in two respects: first, with regard to the group plan, and second, with respect to the technics of the services which are to be rendered. The individual physician must be willing to subscribe to a form of procedure adopted by the organized medical group. He must agree to prepare himself to render the type of service to which the public is entitled; he must understand the value of diphtheria toxoid, the significance of the Schick test, the desirability of giving the tuberculin test and its relationship to the roentgenological examination of the chest, and the health examination. The physician should agree to establish the services in his own office at such times and accept such other arrangements as are incorporated in the group plan.

At the very beginning steps should be taken to acquaint all physicians with the purposes of the program. Failure to do so will result in misunderstandings and in the loss of public confidence. It would be disastrous to urge a parent to send his child of susceptible age to a coöperating physician for diphtheria protection if such physician were unconvinced of the value of prophylactic treatments or if he were not familiar with the technic involved. Months of preparation of the profession may reasonably precede any effort to stimulate public interest.

In the Michigan studies three methods of preparing the physicians have been followed. Postgraduate conferences on preventable diseases designed to attract the physician because of his interest in clinical medicine have been developed and utilized to establish an interest in specific health services. Such conferences have been well attended by the members of the organized medical profession. There is little difficulty in reaching physicians who are wont to attend medical meetings, who belong to the district societies, or who are attached to hospital staffs. There are, unfortunately, some physicians in every community who rarely if ever attend medical meetings, and in order to reach these the services of a medical coördinator have been utilized—a physician representing both the health department and the county medical society—who visits the practising physician in his own office, painstakingly outlines the group plan, and demonstrates the services to be rendered. As the program has gradually evolved and expanded from one of mere diphtheria protection into smallpox vaccination, periodic health examinations, and tuberculosis case finding, each added service has been carefully explained and outlined to the coöperating physicians, both in group meetings and by individual visits. The plan has also been explained to the senior students in the medical schools in order that as these new physicians take up their work in the community they may be well informed concerning the program of medical participation. Diphtheria protection was undertaken as the first objective in the Detroit studies. Since 1928 some 1,100 physicians have cooperated, 700 of whom responded when the plan was outlined by letter through the county medical society, and 400 of whom were reached through the medical coördinator.

After the profession is thoroughly conversant with the group plan the problem resolves itself into one of bringing in contact with the qualified and prepared physician the child of susceptible age who is in need of the preventive service. This requires an application of the tools of health education. The parent must be stimulated to accept his obligation and to secure for his children the services which the coöperating physician is ready and willing to provide in his own office.

Two methods of health education have been employed. Through popular health instruction, which involves all

recognized means of utilizing the printed and spoken word, we were able to secure the protection of about 1 child in 5. We used the radio, radio dramas, billboard advertising, streetcar and motorbus placards, literature distributed through the schools, and we enjoyed the full support of the press with feature stories and editorials. The Health Education Division of the Detroit Department of Health incorporated this program in its routine contact with school children, parents, and the public generally. We realized, however, that to secure the protection of 20 per cent of the children would not suffice. We, therefore, adopted the procedure of reaching the parent through individual health instructions. We have used the public health nurse as the family health adviser.

The public health nurse who has received special training in health education and who at the same time is conversant and sympathetic with the attitude of the medical practitioner, becomes a very potent connecting link between the parent, the child, and the family physician. It is largely through her efforts that the newer knowledge in preventive medicine can be presented to the average citizen. In Detroit by focusing her educational attention upon the parents of the 6 months old infant, she has materially increased the number of children protected. Now nearly 1 out of 2 of all infants born are being protected before they reach their first birthday.

The W. K. Kellogg Foundation has joined with the people who reside in 5 typically rural counties in southwestern Michigan in establishing full-time county health departments with adequately trained personnel. The health officers are physicians who have specialized in public health work, and the public health nurses, in addition to being registered nurses, are graduates in health education from recognized colleges. An unusually close relationship has been brought about in these communities between the medical profession, the dentist, the family health adviser, school teachers, ministers, newspaper men, social workers, and other groups and individuals who have a special interest in health education. Postgraduate courses for these rural physicians and dentists have been given in Chicago, Detroit, and elsewhere. Public health institutes have been held for school teachers, ministers, social workers, and health officers. The underlying motive has been to bring together in one compact unit the various groups who have a common interest, that is, the promotion of child health. At no time in the development of public health work has there been greater need of coördinating and cementing the common interest which, if not activated, remains dormant in the various educational and professional groups which because of training and experience may readily adapt themselves to health education.

We would not urge or recommend a standardization of procedure with the thought of its adoption for all parts of the United States. Rather is it fortunate that there are plenty of opportunities to experiment locally in counties and states, and from the experience of others we may choose and adopt methods in medical participation which appeal to our local conditions. It may be of interest, however, to outline a few of these local experiences. In Detroit, under the terms of a program adopted jointly by the Wayne County Medical Society and the Detroit Department of Health, some 1,100 physicians have agreed to carry on certain public health procedures in their own offices at specified hours. Each physician has indicated the days and hours when he will be available to provide diphtheria immunizations, further agreeing that at these special hours he will charge $1 for each dose of the immunizing agent, and

the health department has agreed to reimburse the physician at the rate of $.50 for each dose in those instances where in his judgment the parent is unable to pay. There is, therefore, in effect an assurance plan, one which assures the child the type of preventive service to which he is entitled, and further assures that the service is available to all at a reasonable cost, irrespective of ability to pay.

This same general arrangement is in effect in Allegan, Eaton, Barry, and VanBuren Counties in Michigan where the W. K. Kellogg Foundation is coöperating and where under rural conditions it has been found practical to transfer the diphtheria prevention treatments from school clinics to the physician's office.

In Charleston, W. Va., the Health Officer, in coöperation with the Kanawha County Medical Society, confronted with an outbreak of diphtheria, determined to increase the percentage of children protected through a plan of medical participation. There are some 110 physicians in Charleston, of whom 88 participated. Conferences were first held with the city officials, the school officials, the health officer, and the members of the medical profession, at which the program was fully outlined and definite instructions given. After preparing the medical group, the education approach was directed toward the public and through the schools, by radio, through newspaper stories; and through other recognized health education channels public support and confidence were sought. There were no funds available with which to pay the physicians for service rendered to indigents. The local doctors felt, however, that the fundamental principle of having the work done in the physician's own office was so important that they would contribute their time to those children whose parents could not afford the modest fee of $1. Four hours per week, 2 on Thursday and 2 on Saturday, were designed by the 88 coöperating physicians as hours at which the service would be rendered. This work was carried forward so effectively that the percentage of preschool and school children protected against diphtheria was doubled within a period of a month. The number of protected children was increased to 50 per cent of the school group as well as 50 per cent of the preschool group, and diphtheria disappeared from Charleston.

Of special note is the fact that 52 per cent of the immunizations were paid for by the parents. Even had the local physicians not benefitted by this increase in revenue, there was no doubt in their minds that the program contained certain tangible by-products which eventually would be profitable not only to them but to the public and to the local health department. The physician who is alert to his responsibility and to the opportunity afforded by many new contacts established in his private practice, will endeavor to interest the child's parent in other health promotion services such as the periodic health examination, the recognition and removal of physical and mental handicaps, and the establishment of a friendly health consultation service between the physician and the family. This will unquestionably do much to overcome the existing influence that many cultists and pseudo-medical practitioners have established in the public mind.

There is nothing new or even novel in this program of medical participation. Many physicians and health officers have for years discussed the advantages of a plan whereby the professional man in private practice plays a more intimate part in the public health program. Recent experiences are but the application of recommendations which are almost universally acceptable. Instead of passively declaring that the physicians will not work with the health

department, the health officers have cultivated the medical profession and extended their facilities to encourage a coöperative plan.

While there has been a diminution in the need of clinics operated under health department auspices, it should be borne in mind that in no case has any service been discontinued until there has been created an effective substitute which will give service of as high a character or better service than that previously rendered. Specifically, the tuberculosis and venereal disease clinics in Detroit have not in any manner been curtailed, although an effort is being made in certain selected areas to transfer the services to the physician in private practice.

In one area during the past 2 years, all indigent cases of syphilis have been returned to the physician's office, the health department providing the necessary salvarsan and other drugs, carrying on the educational program and policing the patient in order to make sure that he remains under the care of his physician during the infectious stage of the disease.

In another area containing more than 300,000 people the coöperating physicians are examining in their own offices the known intimate contacts to reported cases of tuberculosis, are giving the tuberculin test to children of selected age groups and, in coöperation with the organized roentgenologists, are providing chest examinations for the positive reactors. In this particular study no funds have been used to compensate physicians for service rendered to indigents unless the latter are on the public welfare rolls. In Albany the county medical society and health department were successful in securing an appropriation with which to establish a tuberculosis case finding program for all pupils entering the senior high schools, the physicians being paid by the city for service rendered to indigents.

The program places particular emphasis upon the prevention of disease. We all recognize that prevention is cheaper than cure. The program maintains that cordial direct relationship between physician and patient which has existed for so many centuries with satisfaction to each.

Can we not visualize a medical practice of the future wherein every qualified physician will maintain a disease prevention service and a health education center in his own office? where he will function as a disseminator of health knowledge and thus make available to the public maximum utilization of the products of our scientific laboratories and centers of medical research? Each coöperating physician will in fact become a deputized agent of the community health service. It is in this manner that we may look forward with confidence to continued progress in the elimination of needless sickness and premature death.

Serving the Public for Health*

J. L. POMEROY, M.D., F.A.P.H.A.
County Health Officer, Los Angeles, Calif.

PUBLIC events during the worldwide depression in relation to health service for the people command serious attention from those of us engaged in administering official public health work throughout this continent. There are forces both within and without the ranks that may mean profound change in the future of our public health organization. The very structure of government itself is under fire. There is no doubt in my mind that the problem is fundamentally economic, but there are many conflicting interests and philosophies that exert a tremendous influence. Every health department has suffered the impact of budget cuts and of pressure from specialized interest all of which makes the question of the future of great moment.

Health service for the people includes not only preventive measures and sanitation in its broadest sense, but also, whether we administer the service or not, curative medicine. Community sanitation has to a large extent solved the problem of our major communicable diseases so prevalent a century ago, such as typhoid fever, yellow fever, plague, and similar infections. Diphtheria and smallpox may no longer be considered serious problems, since the means of control are well established. On the other hand, the respiratory infections, nutritional disorders, dental infection and decay with its attendant focal infection, the increasing breakdown of the mental and nervous system, the growing mortality from cancer and heart disease, the terrific toll from accidents and the preventable diseases attendant on childbirth—these are a challenge to the public health departments of the United States.

In spite of tremendous effort put into the program of health education, we must admit that we have barely scratched the surface. The American people spend on an average of 125 million dollars [1] annually in support of the cultists and irregular practitioners of medicine, in addition to probably 360 million dollars for patent medicines and quackery. This situation is largely the result of the *laissez faire* policy or the so-called rugged individualism so frequently advanced as the solution of our many difficulties.

Much confusion exists in the minds of *some* members of the medical fraternity in regard to the newer phases of our public health program. The dictum from certain quarters that health officers must be concerned only with mass education, and that personal services to individuals must be omitted, shows a misunderstanding of modern public health procedure. Public health education itself has distinct and specific limitations. The most successful campaigns of health education, in my opinion, rest partly upon individual health service.

* Read before the Health Officers Section of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 3, 1934.

IMPORTANCE OF INDIVIDUAL

With the discovery of the importance of carriers of disease, coupled with the revelation of specific methods of spread of infectious diseases, together with the progress made in early diagnosis, notably the X-ray in tuberculosis, the importance of the individual citizen in our campaign against disease and sickness has become paramount. We cannot X-ray a community or immunize a municipality. A single unknown carrier of an infectious disease may infect hundreds of other persons.[2]

In our campaign of case finding and early diagnosis of tuberculosis in the Los Angeles County schools, we have insisted in all positive tuberculin reactors that the parent be present to receive the interpretation of the test. During the past 3 years 16,000 children have been tested and in 85 per cent of the positive cases the mother has been present. This experience demonstrates that action is always dependent upon interest and upon motivation; without demonstration, public health education, in my opinion, is largely sterile. Many individuals demand demonstration rather than argumentation.

In California all county health officers must be graduates of a medical college of good standing and repute. The majority of the cities also require a doctor of medicine. The question of medical leadership certainly cannot be fairly raised under these conditions. Let us turn to the situation in regard to the practice of medicine in California. A recent survey shows that in Los Angeles County, besides 3,918 M.D.'s, there were 4,218 persons practising medicine who belonged to the cultists. These persons include 1,440 chiropractors, 927 osteopaths, 550 optometrists, and 101 midwives and drugless healers. Also, there are 1,200 known Christian Science practitioners with probably as many more unknown who, to all intents and purposes, are engaging in the practice of medicine. Placing the average income of each of the 4,218 persons at $2,500 a year, over 10 million dollars annually are diverted which should go to the regular medical profession. Probably almost as much money is spent in nostrums and patent medicines, the amount certainly reaching into millions of dollars. If means could be found to divert the money spent in nostrums, quackery, and cultism to the medical profession, I estimate that it would increase the annual income to every doctor in Los Angeles County somewhere between $3,000 and $5,000.

PUBLIC HEALTH SERVICE NOT LIMITED TO PAUPERS

We approach the problem of the medical profession in relation to health departments with a sense of profound appreciation and generous gratitude for the service rendered by the physician. The services of well trained medical men are fundamental in the cause of community health. Their rewards are notoriously low compared to the costs of training and service to the public. We are inclined to question, however, the present tendency to curtail the so-called personal services of health departments and parcel out these functions through a process of financial subsidy. We propose to show that the difficulty cannot be met in this manner; that the cost is prohibitive; and that the risk to the health department from reduced public support is very great indeed.

Let me speak first of the idea so generally prevalent among medical men that the personal services of the health department should be limited to the pauper class. In this respect I wish to quote from the address of former President of the Association, Louis I. Dublin:

> As in the field of medicine, public health work makes no distinction between rich and

poor, between high and low. The prevention, like the cure of disease, knows no level. The method and spirit of this movement maintains the finest of democratic traditions and holds out the largest promise for a glorious future. It is this phase of health service that should give purpose and direction to our professional work.[3]

May I also state that President Hoover in his White House Conference address likened the functions of preventive services in health departments to those of education. In fact, in reviewing the history of the public schools in America, I find almost the same arguments used today against the free preventive clinic in health departments as were used by the opponents many years ago during the struggle for our present public school system in America. Certainly if education, as practically everyone admits, is the very foundation of democracy, then what shall it profit a child to secure an education, if he die of preventable disease in so doing.

SURVEY OF OPINION

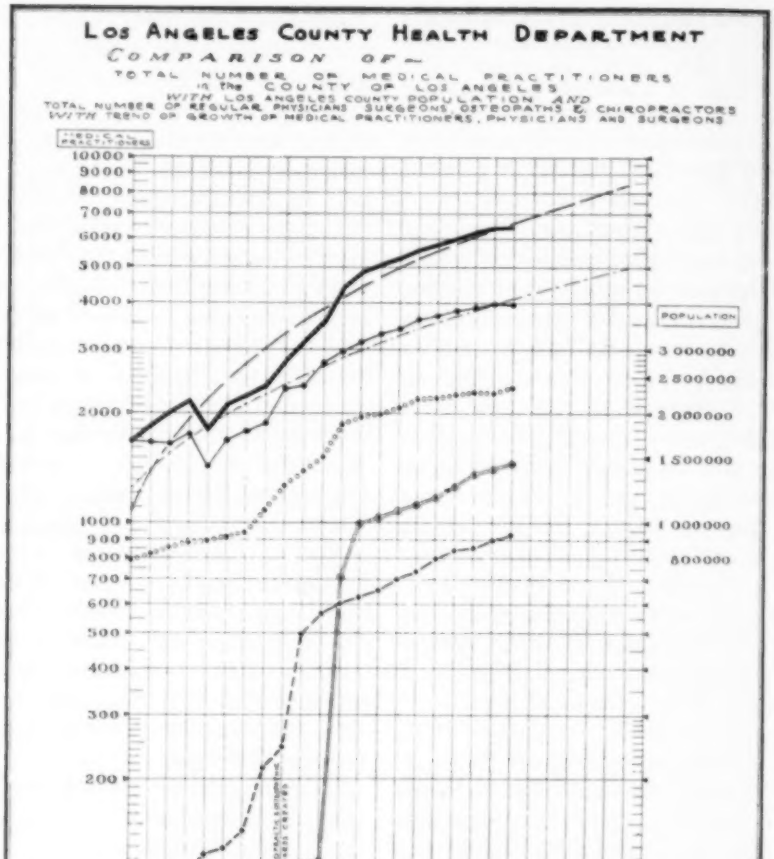
The writer presented these problems to some 30 leading health authorities throughout the United States during the last year, and is happy to say that the majority of the opinion was that the health department is *not* concerned with the pauper alone, but by virtue of its legal powers it is the *duty* of the department to serve the entire people.[4] It was generally conceded that the economic problem of the medical profession is a phase of the general economic difficulties of our entire social structure, coupled with the need for group purchase of medical care, and the elimination of unfair competition from cults. The conclusion was obvious that the parceling out of the so-called personal health functions such as immunization by the payment of fees to private physicians would not solve the economic problem of the physician but might result in further curtailment of health budgets by the people.

Some $3,000 raised by individual contributions from Health Department employees was expended in a 6 weeks campaign in the district of Belvedere on a diphtheria immunization program, in which all patients were routed to the private doctor's office.[5] The doctor collected whatever he could but the Health Department furnished the toxoid. About 500 immunizations were secured and it was discovered that less than half of the population had a regular M.D. for a doctor. A considerable number of citizens criticised the health department for not doing the work. When the program was opened up on a free immunization performed by the health department, 3,000 were done in less than 2 months, at an expense of $.41 per child. In view of the most insistent demands of economy in public government, we are scarcely justified in paying $2.50 to $6.00 to secure an immunization of a child when this service can be rendered by the department for less than $.50.

It is the duty of the health officer to take such measures as are necessary in the State of California to prevent the spread of communicable disease. In view of the very evident obstacles in this method of medical participation, should any health officer endanger his entire program in pursuing a course which is apt to be opposed by the people?

UNOCCUPIED TERRITORY

The situation of the medical profession is also very largely a question of unoccupied territory. We grant that if the medical profession practised in all degrees the procedure of modern health departments in its well baby conferences, in immunization, in early diagnosis of tuberculosis, etc., there would be little need, indeed, for much of the activity of the health departments. The truth lies, however, in the fact that during *good* times few physicians, except


LOS ANGELES COUNTY HEALTH DEPARTMENT
COMPARISON OF —
TOTAL NUMBER OF MEDICAL PRACTITIONERS IN THE COUNTY OF LOS ANGELES
WITH LOS ANGELES COUNTY POPULATION AND
TOTAL NUMBER OF REGULAR PHYSICIANS SURGEONS OSTEOPATHS & CHIROPRACTORS
WITH TREND OF GROWTH OF MEDICAL PRACTITIONERS, PHYSICIANS AND SURGEONS
MEDICAL PRACTITIONERS
POPULATION
TOTAL ALL PRACTITIONERS
TREND OF GROWTH - ALL PRACTITIONERS
TOTAL REGULAR PHYSICIANS & SURGEONS
POPULATION
TREND OF GROWTH REGULAR PHYSICIANS & SURGEONS
OSTEOPATHS
CHIROPRACTORS
* SOURCE — PUBLIC REPORTS
Prepared through the Bureau of Efficiency

specialists, make a routine procedure of these methods. Many examinations held by the Civil Service Department of Los Angeles County during good times for positions paying around $3,000 a year, found few candidates among our medical confrères. Since 1929, however, the health department has had frequent demands that it cease entirely its clinical services and at the same time that it expend thousands of dollars in employment of private physicians. Is there any reason to hope that these physicians who now clamor for public health work will retain their interest when good times return? Shall we disrupt an organization which has taken years to build only to have the task of reconstructing it in a short time?

GROWTH OF CULTISTS

What is the reason of the growth throughout the United States of the cults? It is a curious fact that, coupled with the curtailment of the opportunities for medical training begun some 20

years ago by our regular medical schools, there has been a tremendous and far-reaching increase of the cults. Thousands of young men denied the opportunity to study regular medicine have been lured both by the lower costs of chiropractic and similar training and also by the fact that through advertising methods an effective public demand for these services could be created. The growth of religious healing was undoubtedly in part due to the failure of the medical profession to recognize the needs and the opportunities in the field of mental healing. The psychiatrists have pointed this out many times. The growth of osteopathy and chiropractic is undoubtedly partly due to the neglect of the medical profession to use physiotherapy and similar methods in treating their patients. Here again we have the problem very largely of unoccupied territory.

It has been recently proposed as an aid to the solution of the economic difficulties of the physician that the number of graduates from our medical schools be restricted, and hence the number of licensees would automatically be cut down.[6] It has been stated that there has been an annual excess of over 1,500 practitioners each year in the United States over and above losses through deaths. If Los Angeles County with a population of approximately 2,300,000 can support not only 3,918 practitioners of medicine but also 4,218 cultists, does this show that there are too many doctors? Will the cutting down of the number of regular M.D.'s not be accompanied by a corresponding increase in the cultists? In my opinion, the truth of the matter lies in the fact that we do not have too many doctors but an unequal distribution throughout the United States of physicians and medical facilities in general. Means must be found through proper basic science laws to curtail the growing grasping inroads of the cults. We must look to these factors primarily as one of the important elements in the economic difficulties of the physician. Certainly the answer is not to be found in curtailment of the program of the health department.

THE HEALTH CENTER

The newer aspects of the technic of public health administration brought about the development of the health center. There is no doubt that the hospital has been of enormous benefit not only to the patient who receives treatment therein but as a remarkable visual education to the public of scientific medicine at work. The public school system advanced tremendously through the abandonment of the ungraded little red school house of the past and the adoption of the union or consolidated school system with specialized teachers and adequate equipment. What the hospital is to the medical profession and what the school building is to the teacher, the health center is to the public health officer. Until the conception of the local health center, many neighborhoods in counties and cities had no concrete object lesson, to fix in their minds the meaning of public health work, and had no personal contact except through a quarantine sign or an abatement notice with the health department.

Furthermore, the recent knowledge of the direct bearing upon health and disease of social medicine relating to the personal habits, emotional make-up, occupational adjustment, housing conditions, nutrition and food habits, and a host of other related influences, has meant a readjustment of our program. The idea of treating the family as a unit in the application of modern preventive sciences, both social and medical, rests upon a firm foundation. The recent knowledge of nutrition, the necessity of proper foods in the prevention of dental decay and dental infection brought into

the picture both dentists and trained nutritionists. The discovery that the X-ray was the most important single instrument in the early diagnosis of tuberculosis and an absolute necessity in childhood tuberculosis added to our armamentarium. The increasing use of the laboratory and the importance of the time factor in the diagnosis of infectious disease both from the standpoint of treatment and epidemiology meant bringing the laboratory closer to the people and to the doctor.

In our newer problems of public health the question of economics has become uppermost in our minds. It was therefore a natural step that there be brought together in the same building the health officer with his newer equipment, the social worker, and the medical practitioner. Such a program reduces overlapping of functions and waste of public funds, and enables us to serve a family with all of the necessary forces to effect a cure, to prevent the spread of disease, and to promote the health and longevity of the people. Furthermore, it seems necesary to take steps to get down in under the causes of indigency, especially medical indigency, and to study the means and measures that may be taken toward prevention.

During the past 20 years, in justification of our program in Los Angeles County, we may state that the County Health Department has returned to the people a dividend of 600 per cent on the money expended. Infant mortality has been reduced from 92.8 per 1,000 births in 1916, to 38 in 1933; the infant mortality among the white races in my territory is now 34. The death rate from diphtheria has been reduced from 16 per 100,000 population to less than 1. Typhoid fever, previously an extremely common disease, now shows a death rate of only 0.38 per 100,000 population. Tuberculosis has been reduced to 75 deaths per 100,000 population annually. Whereas previously there was frequent interference with business activities, and closure of the schools during each winter was common, now such radical action is no longer necessary.

GOVERNMENTAL TRENDS

We come now to certain specific trends outside health departments and allied circles. Officially, the health department, being an organic part of government, is directly affected by political trends. At the present time approximately 17 per cent of the population is being supported and, to a large extent, provided with its medical needs by government. President Roosevelt has further announced a program of social insurance to be presented at the next Congress. California has taken the lead in appointing a Senate Committee to survey officially the high cost of illness and if in the judgment of this committee there is need for legislation directed toward aiding in the solution of this problem, the committee was instructed to present a Health Service Insurance Act to the coming session of the Legislature.

Senator Edward H. Tickle of this committee, in a public statement,[7] says:

> The Committee is aware of the violent controversies that attended the establishment and administration of this plan in other countries. The whole history of sickness insurance leads one inevitably to conclude that as, if, and when it is adopted, it *will* be adopted in response to public need and interest and over the opposition of special groups with private interests. I think we must agree that the interests of the public are paramount.

The California Medical Association has appointed a director and made available a sum of money to secure facts regarding the problem of health or sickness insurance or other provisions to meet this situation. Michigan has made a notable survey and adopted in principle a plan called Mutual Health Service,[8] which is a plan to provide through the agency of a non-profit or-

ganization, health services at agreed costs to employed persons and their families whose annual income does not exceed $1,500. This plan is deserving of encouragement by health officials throughout the United States. It provides for both curative and preventive care, and it is suggested that both the state and local health officers be made members of various committees when it is adopted. Under such a plan the health officer would be made responsible mainly for an educational program, both of the public and the medical profession. Regardless of the ultimate working out of such a plan, the aggressive leadership of the Medical Society of the State of Michigan is worthy of our admiration.

The health officer has been concerned vitally in meeting the continual reduction in budgets made largely in order to build up appropriations for local welfare departments. These departments have likewise encroached on the field of public health in taking over by reason of large appropriations many functions belonging to health departments. There is a strong trend toward consolidation of overlapping health functions in the creation of larger areas. It is proposed in California to consolidate the 58 counties into 14 large regions. *Shall the health department become merely a regulatory organization for law enforcement? or shall it play a major part in these newer programs?* Many health officers believe that the public health department is the logical authority to direct and consolidate the newer advances in meeting the economic problem of the masses in the care of the sick.[9] Such a program, combining preventive and curative work, surely answers the critics of the European systems of health insurance.

By training, experience, and knowledge of the basic facts, I believe that the public health department should be recognized by the authorities and given a major function in the new program of socialized medicine for those persons in the under-privileged class. I believe, further, to meet our present situation, that the American Public Health Association should make an effort with the proper authorities at Washington to see that grants of money now being given solely for relief purposes to states and counties be also given to health departments to meet our general curtailment in budgets. Most of the money stricken from health department budgets goes to local welfare organizations. The health needs of the unemployed and the indigent are just as important and in many instances more important than the relief problem. I therefore propose that the Federal Emergency Relief Agency be requested that in any city or county where the budget of the health department has fallen below a minimum of $1 per capita a grant in aid be given in any instance where sums of money are allocated for relief purposes.

THE PRIVATE CITIZEN

In all of the discussions we hear very little indeed concerning the rights of man himself. The Children's Charter visualized to us those fundamental rights for the mother and child, but the child cannot be segregated from his family or his community. Unfortunately, nothing definite exists in the Constitution of the United States concerning the individual's right to health. Health must be interpreted as a part of the general rights of man. Neither is there anything specific in state constitutions except in so far as they create opportunities for health. Unfortunately, too, there is a strong tendency today to limit the health rights of individuals to those who can qualify as paupers. Demands are being made even to limit public health service to paupers. To further cloud the issue, no two agree as to who is an indigent person. We should protest against certain tendencies of today,

on economic grounds as well as on the principle of human rights, which permit an individual to exhaust his resources and likewise reach an advanced stage of his disease before the government may help him. In such diseases as tuberculosis, cancer, syphilis, and many others, not only is the cost to the government then far greater, but so far as the patient is concerned, much too late.

SUMMARY

1. The problem of rendering an adequate health service in a broad way to our American people is affected by the same difficulties which brought distress to industry—namely, overproduction, mal-distribution and ineffective demand. It is significant that the same amount of money expended today by individuals, to a large extent wastefully, would through a system of health insurance provide an adequate system of medical care. Such a system is particularly needed by those earning $1,500 annually or less.

2. The situation cannot be materially improved by curtailment of production of regular doctors, since records show that cultism rapidly fills the place of the vanishing general practitioner. Distribution remains untouched, and effective demand must be increased through an enlarged program of health education. Universal basic science laws are needed to control cultism.

3. Health education must include at present both mass and personal instruction. In competition with cultism and quackery, demonstration and individual services are necessary to win many people back to scientific medicine.

4. The services of the health officer are not circumscribed by social status, or limited to the pauper class. While the health officer should encourage all persons able to pay to secure service from the private physician, diagnosis and preventive services in the control of communicable disease must be free to all citizens regardless of social status.

5. The health officer must discharge his duties in the most efficient and economical method possible. So long as such simple functions as immunizations, diagnosis of tuberculosis, and child hygiene instruction can be performed by health departments at one-tenth the cost of such work privately done, the department is obligated to perform the functions itself. Direct methods of solicitation of persons for private practice by public employees is fraught with grave danger of diminished public support. No other governmental function is performed in such a manner.

6. Consolidation of health functions of individual overlapping health units should be encouraged, creating larger regional areas, and integrating health functions now often the source of much public criticism of waste of money.

7. The health center as an instrument to bring about effective coördination of social, medical, and preventive community activity has proved itself necessary in developing a new technic in disease prevention and health promotion.

8. Basic health department functions as defined by the American Public Health Association must be preserved and financially rehabilitated. Federal funds from the F.E.R.A. or other agencies should be made available through the U. S. Public Health Service to subsidize weakened state and local health departments in stricken, impoverished areas. Subsidies might be based on $1 per annum for each unemployed person in such areas, with the provision that local government, if possible, bring the total health budget up to the minimum of $1 per year for total population.

9. President Roosevelt has announced a message on Social Insurance at the next Congress, and the New Deal promises much for the improvement of the public health. A new interest in social justice for the individual is in the air. Since the health department is an organic part of government we must prepare ourselves for possible change in administrative problems.

Not alone for reasons of social justice to the individual but for purely economic reasons, government has a stake in increasing appropriations for disease prevention. Huge sums of money, federal, state and local, are now annually expended in caring for persons who have reached helplessness through terminal conditions of disease, much of which is preventable.

The dictum of Hermann Biggs that public health is a purchasable commodity is as true today as when this statement was first made. Public health work returns huge dividends to our people; its stock has never been watered, nor its values inflated. Health service in its larger phase is a problem basically of economics, the solution of which requires earnest coöperation of both public and private interests.

Let us hope that together we may lift somewhat the burden of sickness and distress, disease and disability from the backs of the working men and women of America.

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NOTE: Since September 3, 1934, when the above paper was read, considerable progress has been made. The National Recovery Act has passed, granting among other things federal funds for the U. S. Public Health Service and other governmental departments. In California, the House of Delegates of the California Medical Association in coöperation with the State Department of Public Health and the S.E.R.A. authorized an Economic Survey on the problem of medical care. This survey showed clearly the extent of inadequate medical care in the family group earning less than $3,000 per year. It showed one-third of the doctors of medicine earning less than $2,000 in 1933 (net); one-half earning less than $3,000 (net); and three-fourths less than $5,000 (net). Approximately 20 per cent of the persons surveyed were in need of medical care, and only 40 per cent in need were obtaining aid.

As a result of this survey the House of Delegates of the California Medical Association adopted a resolution approving health insurance and recommending that legislation be proposed seeking to establish a health insurance system mandatory as to certain population groups and voluntary as to certain population groups, including the following principles: (1) that the patient shall have absolutely free choice of physician and hospital; (2) that the medical profession shall determine and decide all matters relating to professional standards; (3) that there shall be no provision for cash benefits; (4) that the patient shall receive adequate treatment and his physician shall receive adequate compensation; (5) that these principles shall be maintained with such modifications as may be from time to time recommended and approved by the profession.

The California Senate Ad Interim Committee on Health Insurance with the assistance of a committee representing the California Medical Association prepared and introduced Senate Bill #454 proposing voluntary health insurance for persons above a family income of $3,000 a year, and a compulsory system of health service insurance on all persons where the family income is less than $3,000 per year. While the bill is undergoing many modifications it is thought that it has a possible chance for passage at this legislature.

In Japan

JAPANESE villages without medical facilities are to have them provided through the munificence of Mitsubishi, a famous millionaire, who has given 6,000,000 yen ($2,340,000) for social welfare work. About $600,000 will go for village medical service. Over 3,500 villages are without doctors and 1,000 are in "urgent need," according to the Japan correspondent of the *Journal of the A.M.A.*

A clinic or office will be built in each village at a cost of about $600 and by 1936, 1,000 doctors will be appointed to these remote villages. As a rule, there will be no medical fee in case of poor farmers and fishermen, but for well-to-do people there will be a small fee, which is expected to be paid chiefly by the annual relief fund or from special grants made by the emperor yearly.—*N. Y. Journal of Medicine.*

Fluorine Toxicosis
A Public Health Problem*

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THE widespread occurrence of mottled enamel, a defect of the teeth which is caused by the action of fluorine present in many public and private water supplies, makes fluorine poisoning a public health problem.

We recognize at least 3 types of mottled enamel as may be seen in Plate I, the mild chalky white type, the more severe stained type, and the pitted, corroded type.

It is obvious that mottled teeth are very disfiguring and ugly, for the stain which commonly filters into the porous areas is usually rust colored. In addition, mottled teeth are defective in formation and calcification and are, therefore, structurally weak. The defect is irreparable and permanent. It has been estimated by the Tucson Dental Association that it would cost $1,000 for dental care of the teeth of the average person with mottled enamel, up to adulthood, at which time the teeth must usually be replaced by false ones.

Fluorine is very common in nature, occurring in many rocks and soils, and ranks 20th in quantity in the earth's crust. It is natural, therefore, that fluorine should find its way into many water supplies, and when it is realized that drinking water containing as little as 1 p.p.m. of fluorine will cause mottled enamel, it is not surprising that there are sections in every country in the world and in 24 states of the United States * in which mottled enamel is reported and most of the native born inhabitants are afflicted. It is perhaps most prevalent in the arid states of the Southwest. Our survey [1] of Arizona

PLATE I—Typical cases of mottled enamel in human beings who drink water containing fluorine.

* Arizona, Arkansas, California, Colorado, Florida, Idaho, Illinois, Iowa, Kansas, Louisiana, Minnesota, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington

* Read before the Food and Nutrition Section of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 6, 1934.

PLATE II—A. Normal rat incisors. B. Mottled incisors of a rat which received sodium fluoride. Note loss of luster and pigment and corrosion of enamel.

made in 1931 has revealed more than 45 scattered communities in which mottled enamel is endemic. The fluorine content of the water supplies in these communities varied from 1 to 6 p.p.m. The only other extensive state survey which has been made is that of Colorado. Boisevain [2] reports the occurrence of mottled enamel in 25 communities in Colorado. In all probability, mottled enamel is equally as prevalent in other states, especially Texas and New Mexico.

Mottled enamel has been produced experimentally in albino rats, in guinea pigs, and in dogs (see Plates II and III)[3] by the feeding of fluorides or the residue of water from a community which contains fluorides. A number of lines of evidence indicate that the fluorine passes into the blood stream and interferes with the calcification of the unerupted teeth of children. It does not act in the mouth upon the enamel of the erupted portion of the teeth. The teeth of children or adults who do not begin drinking water containing fluorine until after their second sets of the teeth have erupted do not later show mottled enamel.

In humans, the enamel organ disappears as soon as the enamel of the permanent teeth is completely formed and calcified. The enamel does not regenerate itself and behaves, therefore, like dead tissue. For this reason the enamel of the teeth of adults is un-

PLATE III—Effect of fluorine feeding upon the permanent teeth of a dog. Note corrosion and chipping of the enamel.

affected by the drinking of water containing fluorine. It is almost possible to tell at what age a child moves into a community whose water supply contains fluorine, by the teeth which show mottled enamel. If the person has lived from birth in a community in which mottled enamel is endemic, all of the teeth will be mottled. If a child moves into such a community after the age of 12 to 13 years, only the wisdom teeth will be mottled, for they will all have erupted before he drinks the fluorine containing water. Again, a child who begins to drink fluorine containing water at the age of 5 to 6 years will have no mottled enamel on the 6 year molars, central incisors, and probably the laterals, but will have mottled cuspids, bicuspids, and second molars, for these teeth are in the process of formation at this age.

Experiments on rats whose incisor teeth are continually growing also have demonstrated that the feeding of fluorides does not mottle the erupted portion of the incisors, but it is only the new incisor growth which erupts 2 to 3 weeks after the beginning of the feeding of fluorine which shows the characteristic defect.

We have injected sodium fluoride subcutaneously, and again the evidence indicates that the injected fluorine goes to the site of enamel formation and interferes with the calcification of the enamel of the unerupted portion of the incisors. In rats with intermittent injections of fluorine, the results appear in about 3 weeks after the first injection (Plate IV). The lower incisors of the rat completely renew themselves every 30 days. Normal enamel areas alternate with the areas of defective calcification, the extent of which corresponds with the interval between the injections. The mottled appearance of human teeth may well be explained by an intermittent use of fluorine containing water, or a daily variation in the amount of the drinking water consumed.

Although it is true that the enamel of adult teeth is unaffected by fluorine, the dentine of adult teeth which does receive nutrients from the blood stream continually and whose composition is subject to change, may suffer. Histologic examination [4] suggests that this may be the case. A microphotograph (Plate V) of the incisor of a rat which received 8 injections of sodium fluoride showed 8 stripes in the dentine which was

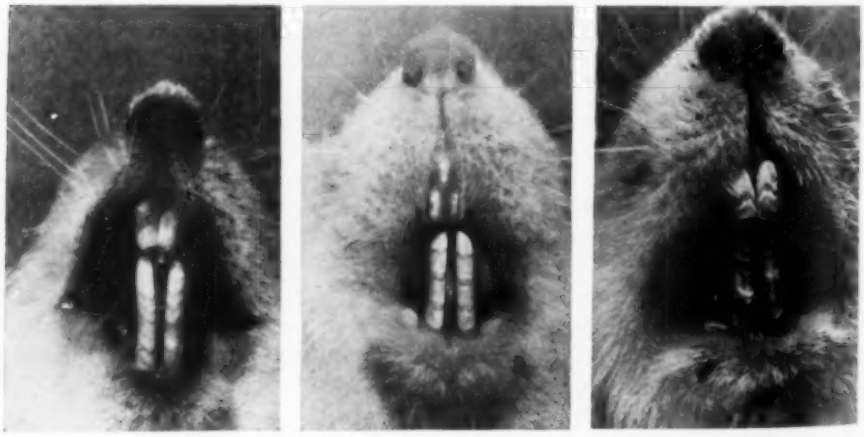

PLATE IV—Effect of intermittent injections of sodium fluoride. Different effects can be produced by varying the interval between the injections and the amount of fluoride injected.

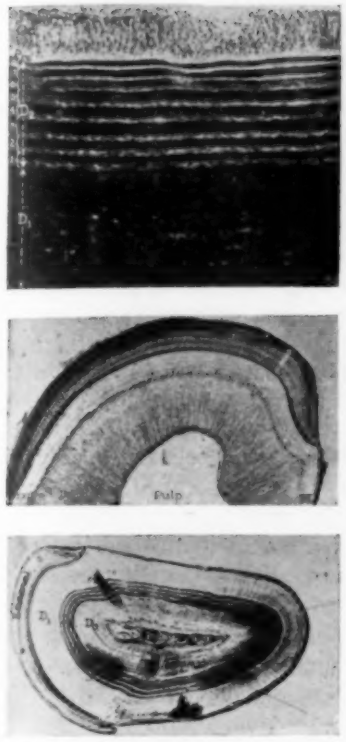

PLATE V—Microphotographs of incisors of rats receiving injections of sodium fluoride. A. Eight injections given on alternate days resulted in 8 decalcification stripes in the dentine. B and C. Transverse ground sections showing stratification in both the dentine and the enamel of the incisors of a rat which received 4 injections of sodium fluoride given at 48 hour intervals.

formed during the period in which the injections were given, whereas the dentine formed before and after the injections were begun was normal. Plate Vb shows a cross-section of the incisor of a rat which had received 4 injections of sodium fluoride. Stratification in both the enamel and dentine may be observed.

It may perhaps be concluded, therefore, that the dentine portion of the teeth of adults who drink fluorine containing water may be adversely affected, resulting in a general weakening of the tooth structure, although the change will not be externally visible.

The question naturally arises then as to the effect of fluorine upon bone. High fluorine feeding (0.1 per cent NaF in the ration) produced a short, square, and stocky appearance in the skeleton of the rat, with the enlarged, deformed bones and bowing of the legs typical of severe rickets. In addition, the bones of the fluorine fed animals, like the teeth, were chalky and fragile. A measurement of the storage in the body of the bone forming elements, calcium and phosphorus, as determined by measurement of the balance between the intake and the output showed that the young fluorine fed animals retained only slightly more than half as much of these elements as did the normal litter mate rats which served as controls (Table I).[5] The fluorine increased the loss or elimination of calcium, and bone

TABLE I

CALCIUM AND PHOSPHORUS RETENTION OF GROWING RATS

	Per Cent Intake Retained		*Daily Retention per Kilo Body Wt.*	
Fluorine Fed	*Ca*	*P*	*Gm. Ca*	*Gm. P*
		Period I		
None	72.6	43.6	0.418	0.278
0.05%	62.7	36.2	0.322	0.203
0.1%	57.9	14.8	0.237	0.068
		Period II		
None	82.1	44.5	0.473	0.286
0.05%	69.8	40.1	0.361	0.231
0.1%	40.6	21.4	0.183	0.107

TABLE II

CALCIUM AND PHOSPHORUS BALANCE EXPERIMENTS WITH GIRLS

		Retention per Kilo Body Wt.		*Per Cent Excretion in Urine*	
Subject	*Age*	*Mg. Ca per da.*	*Mg. P per da.*	*Calcium*	*Phosphorus*
Mottled enamel	10	5.1	1.7	15.7	62.5
Control	10	3.7	1.0	5.5	55.1
Mottled enamel	13	1.4	3.5	12.6	73.3
Control	13	1.4	5.9	5.7	70.2

development was accordingly retarded. Addition of calcium to the diet, however, prevented this loss to a large extent but at the same time the teeth remain severely mottled.

Similar experiments performed on girls of 10 and 13 years who had mottled teeth, due to the fact that their drinking water contained fluorine, did not show a disturbance in their ability to metabolize either calcium or phosphorus (Table II). No signs of bone defects or other indications of defective mineral metabolism have been observed in children whose teeth are severely mottled. It may be concluded that although the drinking of water containing from 1 to 6 p.p.m. of fluorine will severely impair the teeth, the calcification of the bones is probably not upset to any great degree. The teeth are extremely sensitive to fluorine which seems to exert a more specific effect upon them.

Our work has also shown that the interference of fluorine with the calcification of the teeth cannot be prevented by increasing the calcium content of the diet or by a liberal intake of vitamin D in the form of cod liver oil or viosterol. Supplemental feeding of vitamin D concentrates to rats, dogs, and children over a period of years has in no case prevented the action of fluorine or made its effect upon the teeth less severe.

Mottled enamel is usually found only on the second or permanent set of teeth. We have examined thousands of children and noted that the deciduous teeth were free from mottled enamel, whereas all the erupted permanent teeth were mottled. It is believed that the formation of the temporary teeth begins about the 3rd week of fetal life and they are largely calcified at the time of birth. The eruption is usually complete at the age of 2 to 2½ years. In explanation of this almost complete freedom of deciduous teeth from mottled enamel, McKay said "It must be remembered that the temporary teeth are formed largely before birth and are sheltered against outside influences, with a nutritive supply dialyzed through placental osmosis." It is true that thousands of cases have shown that even though mothers drink water containing sufficient fluorine to cause severe mottled enamel (as much as 6 p.p.m.), the deciduous teeth of their children are free from this defect. If the children drink this water from birth however all of their permanent teeth are severely mottled. It would appear that a toxic concentration of fluorine does not find its way through the placental membrane or into the milk supply of the mother.

In support of this, our experiments with rats have shown that even though we feed a high concentration of fluorine (0.05 per cent NaF in the diet) to pregnant females, their offspring have normal teeth at the time of weaning which later become mottled when the young rats have access to the food of the mother animals. Phillips[6] has

shown that feeding a large amount of a mineral supplement to lactating cows containing enough fluorine to produce a toxic effect upon the cows themselves, did not appreciably increase the fluorine content of their milk. From this evidence it seemed likely that the milk of cows raised in regions in which the water supply contained fluorine could be considered safe from the fluorine standpoint and that pregnant and nursing mothers could drink the fluorine containing water without endangering the temporary teeth of their children.

However, our more recent findings make this conclusion somewhat untenable. A district has been recently visited in which the native born children have mottled enamel of the severest type upon their temporary teeth. This extreme condition was not suggestive of mottled enamel at first glance, for the characteristic chalky whiteness of the enamel could not be observed as the teeth were almost devoid of enamel and ground down almost to the gum line. Analysis of the private water supplies in this section of the state revealed fluorine contents varying from 12 to 18 p.p.m., the highest fluorine concentration yet reported for potable water supplies. It would appear therefore that deciduous teeth are *not* exempt from the toxic action of fluorine and that they will become mottled if the water supply contains an extremely high concentration of fluorine.

Fortunately, the occurrence of mottled enamel is sectional. Colorado Springs is perhaps the largest city where the water supply contains fluorides. There is an agricultural practice which, unless controlled, will make mottled enamel more prevalent and no longer sectional in distribution. I refer to the growing use of fluorine compounds as insecticide sprays against agricultural pests. Fluorine compounds are being more and more extensively used as a substitute for arsenicals whose toxic action is known and feared. Cryolite, barium silicofluoride and sodium silicofluoride are among the compounds now rather commonly used for spraying apples in the Northwest, and vegetables such as cabbage, cauliflower, broccoli, celery, etc., especially in Florida and California. The fact that these compounds of fluorine are relatively insoluble has raised the question as to their toxicity. Our study [7] on rats, of the comparative toxicity of fluorine compounds has shown that from the standpoint of the initial damaging effect upon the teeth all are equally poisonous. One mg. of fluorine per kilo of body weight per day, or a concentration of 14 p.p.m. of fluorine in the ration of rats, regardless of the source of the fluorine, will prevent the normal development of the incisor teeth.

Fluorine is even more toxic to the teeth of human beings than to rat incisors which grow at a more rapid rate. A concentration of only 1 p.p.m. in water supply will produce mottled enamel in humans. If we assume an average water intake of from 4 to 8 glasses a day, the average fluorine intake per day from this source will be from 1 to 2 mg. per person.

Analyses of the fluorine residues on food material have been made by the U. S. Department of Agriculture 3 months after the foods were sprayed with various commercial fluorine sprays. Apples sprayed with barium silicofluoride showed an average fluorine content of 5.6 p.p.m. before washing. One of these large apples would therefore provide as much fluorine as 4 glasses of water containing 1 p.p.m. of fluorine. The fluorine residue on cabbage varied from 1.6 to 11 p.p.m., on celery from 9.9 to 28, on cauliflower, from 1 to 3.

Experiments upon the removal of spray residue by washing have been made by Smith and his coworkers of the U. S. Department of Agriculture. They report that fluorine residue removal

amounts to only 85 to 90 per cent by the best washing process available so that " it was impossible satisfactorily to clean fruit originally carrying 0.1 gr. or more of fluorine per lb." They also state that the fluorine residue on fruits sprayed with cryolite or barium silicofluoride plus fish oil was practically impossible to remove to meet the fluorine tolerance set by the U. S. Department of Agriculture even when the most efficient methods were used. It seems logical to suppose also that it would be even more difficult to remove fluorine from the leafy vegetables than from apples.

With the human tolerance level for fluorine so low, it seems a dangerous practice to use the compounds of fluorine for spraying purposes. The ugliness of mottled teeth alone causes untold misery to the afflicted persons.

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Cure for Stubborn Wounds

FROM a clue provided by an insect, entomologists of the U. S. Department of Agriculture have discovered a new way to heal stubborn wounds quickly, painlessly, and cheaply. The new treatment is the application of a solution of allantoin, a bland, odorless, harmless, and easily obtained product found in both insects and plants.

The insect that gave the clue to this discovery is one of the flies—in the maggot stage—that gained fame as a medical aid on World War battlefields, where an Army doctor found that wounds infested with maggots healed better and faster than wounds without them. Since then surgeons all over the world have used maggots in treating deep infections difficult to cure by ordinary surgery.

Dr. William Robinson, of the Bureau of Entomology and Plant Quarantine, now finds that allantoin, which is given off by the maggots as they work their way through a wound, is responsible for part of this power. Dr. C. J. Macalister, who used it successfully 23 years ago for ulcers, reported that European peasants had long applied the roots of comfrey, which contain allantoin, to sores.—Press Release, U. S. Dept. of Agriculture, Apr. 23, 1935.

American Standards for Exhaust Systems

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BECAUSE the Safety Code for Exhaust Systems is now in the process of active development, and in view of the participation of the American Public Health Association in this project through its Industrial Hygiene Section, it was felt desirable by your officers that the plans for carrying on this activity be presented to you for your consideration.

Before going further into this specific question it might be well to present a brief picture of the American Standards Association. Some of you have participated in the development of standards under A.S.A. procedure and are therefore somewhat familiar with its methods of work. With others this is not the case.

The A.S.A. was organized in 1918 by 5 of the major technical societies (mechanical, electrical, civil, and mining engineers and the Society for Testing Materials) for the purpose of properly coördinating the engineering and industrial standardization work which they had been carrying on individually. The organization was then known as the American Engineering Standards Committee. The change to an Association was made in 1928.

The objects of the organization are:

To serve as a clearing house for standardization work in the United States

To further the standardization movement as a means of advancing national economy

To serve as a bureau of information on standardization matters

To act as the authoritative American channel in international coöperation in standardization work.

A large variety of standards is handled including:

1. Nomenclature
   Definitions of technical terms used in specifications and contracts and in other technical work
   Abbreviations
   Symbols for quantities used in equations and formulae
   Graphical symbols
2. Uniformity in dimensions necessary to secure fits; and to provide for the interchangeability of parts and supplies, and the interworking of apparatus
3. Quality specifications for materials and equipment, both for producer goods and for consumer goods
4. Methods of test
5. Ratings of machinery and apparatus which establish test limits under specified conditions as a basis of purchase specifications, or which establish requirements as to performance, durability, safety, etc., under operation
6. Provisions for safety
7. Rules for the operation of apparatus and machinery in industrial establishments
8. Concentration upon the optimum number of types, sizes, and grades of manufactured products

The work is carried out by simple but systematic methods of coöperation, through which all groups interested in any particular project participate: (1) in deciding whether the work shall be undertaken at all; (2) in formulating the standard; and (3) in its ultimate approval as an "American Standard." The arrangement is flexible, and alternative methods have been developed, as the result of experience, all based upon

the same principle, *viz.*, the assent, affirmatively expressed, of the groups having a substantial concern with the scope and provisions of the standard.

The usual method is that of a joint technical committee, made up of representatives of the various interested groups. These joint committees form effective cross-sections of the interested groups, and are called sectional committees. This is the method being followed in the development of the safety code for exhaust systems. In large projects such as this the detailed work is generally drafted by sub-committees.

To date, 266 standards have been approved and 173 others are under way. In this, more than 600 national organizations are officially participating. Approximately 3,000 experts are serving on the various committees.

A very important group of the standards approved by the A.S.A. is that group comprising the 40-odd safety codes. This phase of A.S.A. work was initiated in 1919 following two conferences held in Washington, D. C., under the auspices of the U. S. Department of Labor and the National Bureau of Standards, called to discuss ways and means of obtaining relief from the situation caused by the multitudinous number of conflicting rules, regulations, and safe practice recommendations, which had been developed and promulgated by regulatory bodies, insurance groups, trade associations, and individual companies. As a result of the discussions the A.S.A. was requested to extend its scope of activities to include the development of safety codes on a national basis.

The American Standards Association accepted this mandate and changed its form of organization to include a safety group composed of the National Safety Council, both stock and mutual casualty insurance companies, the U. S. Department of Labor and the National Bureau of Standards. A National advisory committee now known as the Safety Code Correlating Committee was organized to advise the A.S.A. in regard to the nature of the projects that should be undertaken, the appointment of technical committees, the scope of the work of individual projects, and to determine the degree of consensus that has been arrived at on the acceptability of codes submitted for approval as "American Standards." In addition to the organizations just mentioned, several industrial groups—fire protection organizations, the International Association of Industrial Accident Boards and Commissions, and the Association of Governmental Labor Officials—are represented on this national advisory committee.

The program developed by this committee has grown in the number of codes completed and under way, and in the extent of the use of A.S.A. Safety Codes by regulatory bodies, insurance groups, individual trade organizations and companies. Many departments of labor and industrial accident commissions have either adopted many of the codes verbatim or used them as the basis of state regulations. The National Compensation Rating Schedule of the insurance companies has been brought into harmony with A.S.A. codes. In states where the schedule is no longer effective, American Standard Safety Codes are used as the basis of insurance recommendations for the removal of accident hazards in industrial establishments.

A number of important safety codes are under development at the present time. Some of these were initiated as part of the original program outlined by the Safety Code Correlating Committee.

The code for exhaust systems is such a project, and although a number of years have elapsed without much progress being made, it is gratifying to report that the committee is now quite active.

When the code for exhaust systems was initiated some years ago it was intended that its scope would cover the construction and operation of such systems from an engineering point of view. The delay in developing a code around this scope came chiefly through the conflicts of opinion existing in the group comprising manufacturers of exhaust equipment. Some believed that trade secrets were involved. Others differed as to the engineering principles involved. All of these differences resulted in years of delay. Finally the organization which was then sponsor for the project, the American Society of Heating and Ventilating Engineers, asked to be relieved of its duties as administrative leader for the work in order to be able to devote all its attention to the ventilation code. The request was granted and the International Association of Industrial Accident Boards and Commissions took over the administrative responsibilities for the work.

The new sponsor immediately proceeded to reorganize the sectional committee. New organizations were added, and representation of other organizations were changed. Since this reorganization has taken place two meetings of the committee have been held and a new scope and a plan of operation have been adopted.

The sectional committee has decided to approach the very difficult task with which it is faced by developing, step by step, a set of separate standard specifications for exhaust hood designs and air velocities for each distinct process or industry. Thus each group of specifications will constitute a separate standard applicable only to the specified process or industry. Initial projects upon which sub-committees are about to be appointed are as follows:

1. Abrasive Cleaning
2. Chronium Plating
3. Granite Cutting
4. Rock Drilling
5. Spray Coating

While it is contemplated that additional exhaust specifications will be developed for additional processes as opportunity offers, the above group was chosen because there appear to be already available sufficient data from field studies and laboratory research upon which reasonable and adequate standards can be based.

During the past several years there has developed in many industries throughout the country a very exceptional and severe claim situation based on the alleged exposure of industrial workers to a considerable variety of materials that contaminate the workroom air—the claims being based on so-called " occupational diseases " resulting from the inhalation of air containing allegedly injurious substances in dangerous concentrations. While the accurate evaluation of these occupational disease claims is a medical one beyond the scope of A.S.A. undertakings, the problem of minimizing the exposures in question is largely an engineering problem of exhaust equipment applied to the process that causes contamination of the workroom air, a problem quite amenable to standardization. No uniformity of practice throughout industry has developed as yet to meet the situation.

Of considerable importance in this connection is the wide variation in existing State Labor Department Regulations that have been promulgated to correct the hazards here in question. In many instances, these regulations are too general in phraseology to prove of assistance to industry in applying specific corrective measures. In other instances the standards of performance are set impracticably and unnecessarily high. In general, it is fair to say that these local regulations have not been worked out with sufficient technical skill to prove of practical value to plant managements in their efforts to solve their occupational disease problems. This is quite understandable as very few

if any of the regulatory bodies have had sufficient funds, particularly during the past few years, to enable them to carry on the research and field work that is so essential in securing adequate information. One might also raise the question as to whether or not the best results can be obtained if a considerable number of independent research projects on the same subject are undertaken. It would seem much better if such activities could be correlated through one central clearing house and in connection with a well thought out and well coördinated plan of standards development.

In addition, and quite unfortunately, the mere technicalities of state regulations are at times being utilized in law suits to establish the legal status of negligence more or less regardless of any medical proof that injury has actually been received by the claimant in the course of his employment.

It is the hope of the Exhaust Code Sectional Committee that national standards for exhaust of numerous industrial processes can be developed with such weight of technical authority back of them that these "American Standards" will either be used verbatim by state regulatory bodies, or that the technical principles established in the standards will be used as the basis of state regulations. The committee hopes to appoint an advisory committee of toxicological, pathological, and engineering experts to assist in the determination of threshold limits for the toxic dusts, gases, and fumes, that are to be removed through the use of exhaust systems. This, it is hoped, will tend to coördinate the existing points of view of experts, and also give the standards the authoritativeness which will automatically obtain the acceptance which the committee anticipates.

Already the financial losses incurred by industries throughout the country from occupational disease claims have mounted into millions of dollars, and there appears to be an increasing demand from all persons interested that adequate but practically reasonable standards be developed for these hazards, especially along the lines of exhaust equipment which is the logical solution of the great majority of industrial hazards of this type. The Exhaust Code Committee has an extensive problem before it that involves a considerable volume of detail and it welcomes the full coöperation and participation of the American Public Health Association in this work.

The Future of the Program for Tuberculosis Control*

KENDALL EMERSON, M.D., F.A.P.H.A. (*Life Member*)

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THE decline of the tuberculosis death rate in this country to one-third its 1900 level is not an accident. On the contrary it is an outstanding example of man's capacity in certain measure to carve out his own terrestrial destiny. To no one cause can be attributed even major credit for this triumph. It has not resulted from the discovery of any specific cure. The achievement was possible only by combining all the forces of medicine, public health, social and industrial welfare in a common effort to control this greatest menace to race survival.

Among the factors involved in the concerted attack on this disease the National Tuberculosis Association has at least played a persistent rôle. In the past ardor of youth it may have claimed more than its share of accomplishment. In its maturity it is operating in closer harmony with its official and unofficial colleagues. In the future it seeks an opportunity to supplement even more effectively the work of those coöperating health and social welfare agencies through whose joint activities the organized attack on tuberculosis looks forward to ultimate victory.

Already there is a fair measure of agreement as to the trends that a future program must take. This can be shown without too great detail by observing certain historical characteristics revealed by an examination of the statistical record of the declining mortality rate.

In 1932 Dr. Hofbauer published a report [1] discussing a chart (Figure I) which he had compiled showing the death rate from tuberculosis in differing cultural groups in the city of Hamburg during a period of 30 years. At the beginning of this period it could be shown that the industrial and poorer classes exhibited a death rate several times that prevailing among the more intelligent and more fortunate economic groups of the community. This fact is consonant with our general knowledge of the epidemiology of tuberculosis.

The significant interest in Dr. Hofbauer's investigation lies in the extension of the two mortality graphs. He found that as organized efforts to improve public health proceeded the gap between the curves steadily lessened. At present the lines have drawn practically together and the contrast between classes tends to disappear. His conclusion is that the rough work of tuberculosis control is nearing accomplishment. The difference in death rate due to social differences, industrial causes and underprivilege will not be so evident in the future. We cannot hope for further marked lowering of mortality through the alleviation of environmental causes alone. From a situation where almost any improvement in sanitation and personal hygiene would re-

* Read before the Health Officers Section of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 6, 1934.

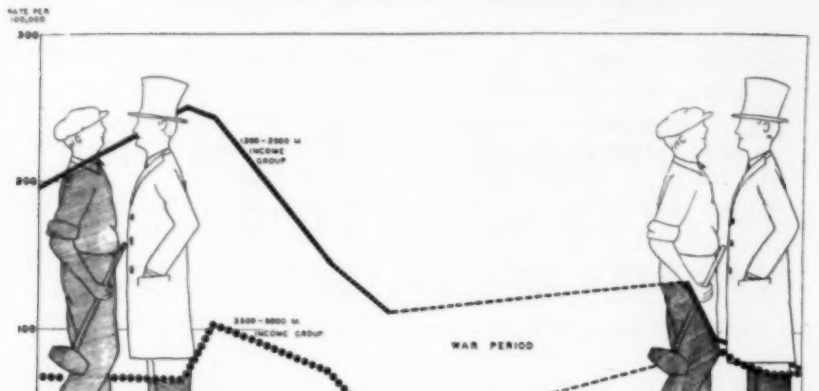

FIGURE I—Tuberculosis death rates per 100,000 for income groups of 1,200–2,000 and 3,500–5,000 marks. Hamburg 1902–1914; Baden 1924–1928. Allowances are made for changes in value of the mark and these income groups include only taxpayers without dependents

duce the tuberculosis mortality concurrently we have reached a point where far more intensive methods of control must be applied to secure comparable progress in the fight.

In other words we have arrived at a situation where tuberculosis control ceases to be a business enterprise with much that is mechanical in its program, and becomes an art in the sense that we use the term when describing the practice of medicine. Shotgun procedures, effective in the past, are not destined to bring similar results in the future. Already there is some evidence here and there that the rate of decline is straightening out rather than pursuing its reassuring downward career.

Stimulated by this somewhat striking observation in Hamburg, I asked my statistical department for any evidence which our own records might disclose. A means lay fortunately at hand. The Metropolitan Life Insurance Company maintains its own mortality rates for tuberculosis. They represent the fatal occurrence of the disease among a very large group of industrial workers including varying social levels but excluding in some measure at least those members of society to whom we refer as belonging to the privileged classes.

Against the Metropolitan graph we have placed the graph for the whole population (Figure II) and we see at once a striking resemblance to the somewhat related study made in Hamburg. Certainly it would appear to be a reasonable inference that in our own country the rough work of tuberculosis control had accomplished its more picturesque achievements and that now we may well assume that we are settling down from a period of rapid advance against a more obvious enemy to a perhaps longer period of trench warfare where our objectives are not nearly so visible and our hope of rapid progress is much less secure.

Realizing the crudity and incompleteness of these two studies I should not have ventured to present them save as corroboratory evidence in justifying two changes in program which mark the future plans for tuberculosis control. The first of these is the recognition for some time past that while general improvement in standards of living is

still to be fostered as vigorously as before, special attention must be focused on selected industrial groups and on certain racial subdivisions of our people where a lag is revealed by our more intensive statistical research. Already this change in our aim has begun, already we are beginning to use the rifle in place of the old shotgun and to shoot at predetermined targets, instead of blindly at the whole flight of birds as we have done with admitted success in the past.

But a few years ago there was in operation an extensive campaign to eliminate dust from industry on the ground that all dust was irritating to the lungs and therefore predisposed to tuberculosis. That was wise for the moment, since minimum quantities of dust make for maximum comfort to employees and perhaps lead to increased efficiency. But it was a shotgun procedure for it was soon learned that many dusts appeared to have little if any effect on the actual development of subsequent disease. Then it was that the rifle was brought into use instead, the sights adjusted and the true targets, silicosis and asbestosis, clearly recognized. A late report from Vermont shows that despite our knowledge of this fact and our efforts to control epidemics among granite cutters the rate of incidence has shown steady progress right up to the present time. No better illustration of the need for selecting our targets could be adduced.

Another step for the immediate future is the adaptation of general procedures to the special requirements of tuberculosis control among the several racial groups, Negroes, Indians, Mexicans, which compose a measurable fraction of

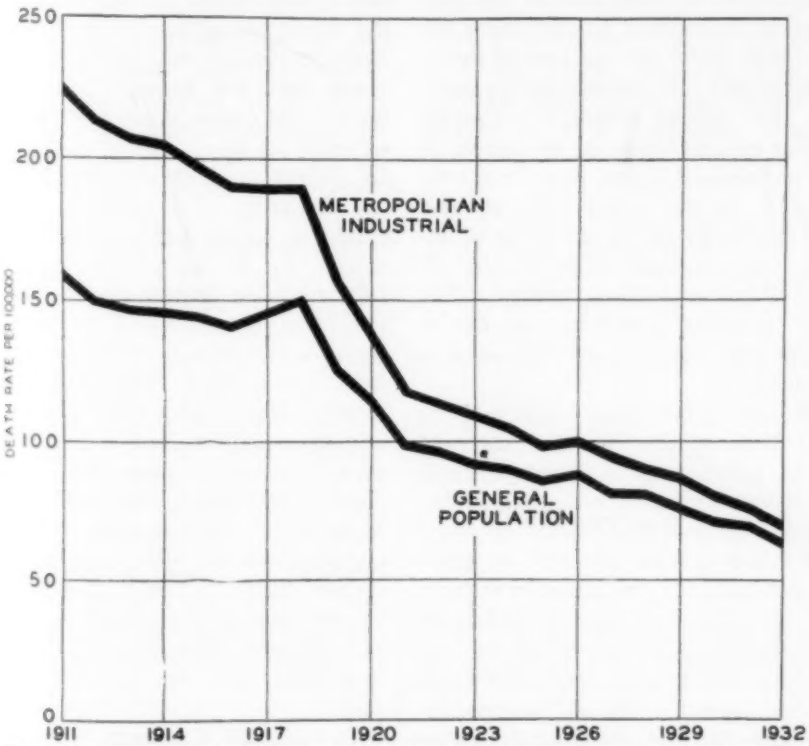

FIGURE II—Tuberculosis death rates per 100,000 for Metropolitan industrial policy holders and the general population in the United States Registration Area, 1911–1932

our population. Hitherto it has been found that control methods applicable to the people of the country as a whole yield disappointing results among certain of the subdivisions of population. Why is this? The N.T.A. is attempting to aid in answering the question through the activities of a Committee on Tuberculosis among the Negroes which operates under a grant from the Julius Rosenwald Fund. We feel a deep interest in the effort on the part of the new Indian Commissioner to attack the similar problem presented by the 600,000 wards of the federal government resident on the Indian Reservations.

In addition to the more accurate direction of the tuberculosis control program along industrial and racial lines, there are certain high spots in the mortality graph corresponding to different age groups in the two sexes, and also unfavorable variations in the case of certain professions, among which are those of the physician, the trained nurse, and assistants and technicians in sanatoria and general hospitals. Certain alarming reports regarding the danger to such professional groups have been contradicted, but the actual facts are still too doubtful to justify a feeling of security, and intensive study of the existing situation is first needed, after which consistent measures must be devised to install every practical means of prevention.

The second inference which may be drawn with reason from the observed facts of epidemiology in these two charts is that there may be biological factors of unrecognized significance in their possible influence on our efforts to eliminate the disease. The school of thought which suspects fundamental differences in the human soil upon which the disease may chance to be implanted has a potent argument in the well known contrast in susceptibility to tuberculosis between different species of animals, such, for example, as the dog on the resistant, and the guinea pig on the highly sensitive end of the scale. The slight but recognized advantage which the Jewish race holds over the general rate may be another evidence of this principle or, as some believe, may be due to social and dietary variations. The notably profound susceptibility of the Negroes and the well known depredations of the disease when introduced into the virgin soil of primitive races also present problems for study and solution upon which must be based certain phases of any wise program for the future.

The story of communicable disease control is inextricably entwined with the advance in our knowledge of the specific bacteria. The tubercle bacillus is among the bacteriologists' oldest acquaintances, yet to the present it remains one of a small group of acid-fast bacteria which refuse to render up certain indispensable information regarding their biological peculiarities. For nearly a decade the N.T.A. has prosecuted intensive research into the behavior and chemical composition of the tubercle bacillus. No ultimate goal is set though the hope of guidance toward the discovery of a specific cure is of course a basic motive underlying this work. Up to the present much carefully recorded pioneer work in chemical and physical analysis of the bacilli has been accomplished, work which has been costly both financially and in human effort, but which will scarcely require repetition, and which adds an ever broadening foundation to build upon in carrying forward future experimentation. The association's program contemplates not only maintaining the studies now in process but seizing eagerly any promising new leads which may present themselves and call for an expansion of the present research policy.

In the field of treatment the expanding employment of approved surgical procedures has made rapid progress.

This development has an important bearing on the epidemiological control of tuberculosis because one of its gratifying results is to render the patient's sputum free from infecting bacteria at a much earlier period, thereby reducing his social menace as a carrier of the disease. We thus have another resource to supplement the policy of segregation upon which much of the present accomplishment depends.

Finally, the future program of tuberculosis control must take solicitous heed of the needs of the arrested case. Ten years ago I requested some statistics from one of our long established state sanatoria regarding its discharged cases and was shocked to receive a reply to the effect that due to the difficulties involved no follow-up records were kept after the return of a patient to his physician or to a local health authority. The difficulties referred to included serious lack of coöperation on the part of the patient himself who did not wish his history of infection to become a social or industrial handicap to his future. A decade of education and training of patients has notably altered this mental attitude and impressed upon them the necessity for supervised readjustment to normal life if they are to avoid recrudescence of the disease. The rehabilitation of the arrested case is recognized, not only as a part of essential treatment for the benefit of the patient, but as a specific public health function in order to reduce the danger to a community of reactivation with its renewal of infectivity.

Evidence is lacking of revolutionary changes in the future program of tuberculosis control. Sanitation, avoidance of overcrowding, industrial hygiene, and good standards of living are its basic features. Early diagnosis with tuberculin testing and X-ray must continue. Clinics and sanatoria with the preventorium type of care for contact cases must be provided. The follow-up and after-care of arrested cases must be intensified. It is only by the refinement of these measures in the light of accumulating knowledge that we may carry on a gradually successful warfare until that happy moment when there shall be raised up a man of genius to present us with a specific means of curing or preventing tuberculosis.

REFERENCE

1. Flatzeck-Hofbauer, Alfred. *Kommen und Gehen der Tuberkulose.* Leipzig, 1931.

Recommended Procedures for Diphtheria Immunization

THE Sub-Committee on Evaluation of Administrative Practices of the Committee on Administrative Practice of the American Public Health Association on the basis of studies made at its request by William H. Park, M.D.* offers the following as representing the best contemporary practice in immunization against diphtheria:

Passive Immunization—Limited in application to persons known to be, or presumed to be susceptible to diphtheria, who are exposed to direct contact with a case of this disease, or who remain in the family or household where there is a case of diphtheria in the communicable stage of the disease, under such conditions of unavoidable personal contact as would be likely to lead to infection. Included in this category are Schick-positive children in institutions where one or more cases, or carriers of the virulent form of diphtheria bacillus, have been discovered among the inmates of the institution.

A single intramuscular injection of diphtheria antitoxin of 500 to 1,500 units according to the size of the person (500 for a child up to 5 years of age; 1,000 for a child of 10; 1,500 for an adult) will protect for not more than 3 weeks or less than 10 days. If for a good reason protection beyond the 3 weeks by passive immunity is subsequently found to be necessary, repetition of the same dose will protect for not more than an additional 10 days.

Active Immunization—All healthy infants at 6 to 12 months of age should receive a single subcutaneous dose of 1 c.c. of an alum precipitated toxoid preparation, authorized by the National Institute of Health. This procedure can be relied upon to produce a Schick-negative condition within 2 months, in 95 per cent of such children. Small lumps may be palpable in the tissue at the site of the inoculation for several weeks while the relatively insoluble precipitated toxoid is in process of absorption. The maximum percentage of Schick-negative reactors will be found by 3 months from the date of inoculation. No appreciable annoyance to infants or to children up to 6 years of age results from the use of alum-precipitated toxin in the above described manner. If used in older children, or in adults a considerable local reaction may develop in 5 per cent of persons, and occasionally also a constitutional reaction. Local or constitutional reactions rarely last more than 24 hours. The local reactions may be alleviated by dressings wet with saturated aqueous solution of boric acid.

In persons 6 years of age or over a small dose (0.1 c.c.) of the alum precipitated toxin should be given, and if this causes no annoying reaction within 24 hours one dose of 1 c.c. may be given 1 or preferably 2 weeks later.

If the soluble toxoid preparation is used instead of the alum precipitated toxoid the infant at 6 months of age should receive 1 c.c. subcutaneously or intramuscularly in each of two doses, with an interval of 1 or 2 weeks be-

* Part of the cost of these studies was met out of grants from the Commonwealth Fund for evaluation of public health procedures.

tween them. In 90 per cent of children from 6 months to 6 years of age a negative Schick reaction will develop in previously positive Schick reactors within 3 weeks of the date of the inoculation.

In older children and in adults an initial dose of 1 c.c. is followed, if there is no severe reaction, by a second dose of 1 c.c. after 1 week interval.

If toxin-antitoxin is used in a fresh preparation of suitable toxicity, as many as 80 per cent of Schick-positive children (6 months to 6 years of age) will develop a Schick-negative reaction in the course of 3 months after the completion of a series of three subcutaneous or intramuscular inoculations of 1 c.c. each given at intervals of at least 1 week, and preferably of 2 weeks, between first and second, and second and third doses. In older children the same preparation, doses, and intervals will produce similar results, but the maximum percentage of Schick-negative results may not be reached before 6 months from the completion of the series of three inoculations.

The toxin-antitoxin mixture less often causes reactions in children over 6 months of age and in adults than do the soluble and alum precipitated toxoid preparations, and for this reason the familiar and original toxin-antitoxin is the preparation of preference for persons of school age or older requiring active immunization against diphtheria. Unless the toxin-antitoxin is of the proper degree of toxicity, not more than 50 to 70 per cent of school children or adults are likely to show a change from positive to negative Schick reaction within 3 months of the completion of the series of three inoculations as above described.

Persons who continue to show a positive Schick reaction after one such series of three toxin-antitoxin doses may develop a negative Schick reaction after a second series.

Only in the case of adults exposed to particular hazard of infection with diphtheria, such as attendants, nurses, and physicians serving in children's and particularly communicable disease hospitals, is it important to carry out a second series of such inoculations in those showing a positive Schick reaction after the first series.

Schick testing—Except for epidemiological purposes and to determine the immunizing effectiveness of a preparation not previously used, there is no particular value in routine Schick testing infants or children between 6 months and 6 years of age, either before or after the use of the single dose of alum precipitated toxoid. In only such children of 6 years of age or over, and adults as have been proved to be susceptible to diphtheria by development of a positive Schick reaction, should active immunization be undertaken, and in these a Schick test should regularly be made 6 months after the completion of the inoculation, whatever the preparation which has been used, to determine whether they have by that time become immune.

The advised choice of age of person, preparation, and dose to give best results for the person and the community, at least individual inconvenience and cost is as follows:

A. Infants at 6 months: Alum-precipitated-toxoid. One dose of 1 c.c., without prior or subsequent Schick testing. Minimum of reactions and maximum per cent of active immunization produced.

B. Children from 6 months to 6 years of age: Same procedure as in A. Reactions slightly increasing with age but unimportant.

C. Children 6 years of age and over, and adults, known to be susceptible to diphtheria: Fresh and adequately toxic toxin-antitoxin mixture in three 1 c.c. doses at intervals of 2 weeks, followed by a Schick test, at the end of 6 months to determine presence or absence of

immunity, with a second series of inoculations for those still showing a positive Schick reaction whose occupation exposes them to a particular hazard of infection.

Only by using toxoid preparations, of whatever variety, with high antigenic potency, at least as high as now required by the National Institute of Health, can the highest percentages of actively immune persons be artificially developed by use of the single dose of alum-precipitated-toxoid.

HAVEN EMERSON, *Chairman*
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Obstetrical Mortality in the United States and Abroad

IN recent years many obstetrical papers have discussed the high puerperal mortality rate of the United States. Much has also been written of the unfairness of comparing the maternal mortality of this country with that of others.

It was concluded by Tandy that the methods of assignment in use in Australia, Netherlands, New Zealand, and Scotland are similar to those of the United States, and the official maternal mortality rates are directly comparable within a small margin of error. Under the method of Denmark a larger number of deaths would be assigned to the puerperal state and the rate for the United States would be significantly higher than now. Under the methods of the other countries included in the study, a smaller number of deaths would be assigned to the puerperal state and the rates for the United States would consequently be lower.

Differences in methods of assignment were insufficient to explain the high maternal mortality rate of the United States as compared with foreign countries. The official figure of the United States, which in the last few years has exceeded that of every country except Scotland, remains high no matter what method of assignment is used.

Even if the method of the country assigning the smallest proportion of deaths to the puerperal state were in use in the United States, the United States figure would still exceed that of all the countries except Australia, Canada, Chile and Scotland. Rates for the United States estimated in accordance with the assignment procedure of the respective countries are in every instance except Scotland in excess of, and are in five instances more than double, the official rates of the countries themselves.—*South. M. J.*, 28, 4:388 (Apr.), 1935.

Selling Health Department Members First on Health Education*

HUNTINGTON WILLIAMS, M.D., DR.P.H.
Commissioner of Health, Baltimore, Md.

THOSE who selected the subject that I have been asked to discuss must surely have had in mind a fairly obvious fact and one which is not given the attention it deserves from health department executives. This fact is that the health education efforts of health departments are usually directed toward the general public as an audience without making use of the entire health department staff, including not only the medical and nursing members but also every stenographer, inspector, and routine worker as potential public health missionaries. I imagine the motive back of this meeting amounts to a challenge which many health departments, including the two with which I have been associated, are not in a satisfactory position to accept.

To be a little more specific, the question seems to be: First, just how interested are the rank and file of employees in a health department in the more vital field programs, such as diphtheria prevention, or the protection of 1 year old babies from exposure to measles during a brisk outbreak? Second, if it is considered desirable, how can a health department best organize and stimulate an interest throughout its entire staff which would result in their presenting to their friends and acquaintances, while not on duty in the office, the content of the health education program the department is most anxious to spread abroad at any given time?

It occurs to me that some of you may be interested in certain extracts from replies which were received during the summer from a number of health officers to whom I presented the problem for comment. From one city came the following:

> In reply to your letter of June 12, I wish to state that we agree with you that only too often do the routine workers in the various bureaus became lukewarm in regard to the program which the department, as a whole, is anxious to develop.
>
> We are trying to overcome this . . . by meetings with brief talks to the workers, giving them the necessary instructions and, at the same time, trying to build up for them a background of motives or reasons for the various regulations and rules, thus getting them interested in carrying forward the work which we desire done.

Another city health officer wrote:

> After looking over our various printed instructions to employees, I have reached the conclusion that we really have not anything to offer on the education of the Health Department personnel.
>
> Nearly all of our work is done through conferences. The department heads meet at least once a month with the Commissioner of Health to discuss their problems. The various department heads educate their employees through personal contact and group meetings. The various department heads also give a course of lectures to the public health nurses. The Commissioner and Deputy Commissioner

* Read at a Joint Session of the Health Officers and Public Health Education Sections of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 5, 1934.

of Health give occasional talks to the large groups of employees.

One of the most interesting letters, from a smaller city, included this statement:

> During the 10 years that I was Health Officer in . . ., one of the most effective methods for keeping the personnel of the Health Department stimulated, informed and interested in public health work was through our weekly and bi-weekly staff conferences.
>
> The entire personnel of about 70 were present at these Saturday morning meetings. The programs included outside speakers on a wide variety of health topics, and also speakers from within the department informing the rest of the group of their specialty.
>
> On some occasions these meetings went as far as a debate as to the relative value of the type of work that they were doing. The Health Officer, himself, gave a good many of these talks which covered all kinds of health topics from book and magazine reviews, outstanding epidemics in the country, to frank presentation of difficult situations within the department.

Dr. Geiger, whose public health work in San Francisco is a constant inspiration to his friends in the eastern part of the country, called attention, in connection with our problem, to the genuine need for an *esprit de corps* among all the employees in a health department. My predecessor, Dr. C. Hampson Jones, who for so many years was responsible for the public health of Baltimore, was singularly fortunate in his constant efforts to develop what he referred to as "the public health spirit" among nearly all the 535 workers on his staff. Dr. Geiger has pointed out that a health department should have a full-time director for the Bureau of Education who should organize regular classes for employees as well as assume responsibility in the field of health education for the public. This would include planned graded classes as well as special lectures on occasions. Just how far behind many of us are in what we would like to see in the staffing of a public health education bureau in a health department, I may best indicate, perhaps, by referring to the one full-time public health nurse who with the assistance of a stenographer acts as health education director for us in a city of over 800,000 population. Of course, the answer is that other bureau directors and their assistants coöperate and are responsible for a very large share of our public health education work. Dr. Geiger points the way, as he sees it, as follows:

> The full organization of a bureau of education is probably out of reach of most health departments at the present time but the (1) careful introduction of the new employee to the work, (2) a simple department manual kept up to date, (3) occasional or regular bulletins issued to each member of the department, and (4) arrangement for lectures, especially for the non-professional members, all appear not too difficult for realization.

From the Director of the Division of Public Health Education in a large state health department there was received the following:

> I certainly believe that public health education, like charity, should begin at home.
>
> I know for a fact that the rank and file in the department seldom read *Health News*, and are interested only in their particular jobs. Ask them anything outside of that and the answer is "I don't know." I do not think that this applies to the professional staff.
>
> Some of the health habits of the rank and file, from personal observations, are what might perhaps be expected of the personnel of a 5 and 10 cent store.
>
> Some years ago in the Capitol, I attempted to start a series of health lectures in the department for the clerks and stenographers, etc. I did succeed in holding a few meetings on social hygiene, but the plan then fell through, partly because of the opposition of directors to giving the employees the necessary time.

The Health Commissioner from another large city has written me:

> I feel as you do that it is very important to have some one detailed to the Health Department who gives his entire time to health educational methods. Only in this way can we get over the problems that are continually confronting us. . . .

A broad program of public health education has not been properly organized in . . . up to this time.

Dr. Boucher, Director of Health of the Health Department in Montreal, has written that in his department the employees are gathered together in groups in the different divisions, and under supervisors each week are given information and instructions on health department work in a manner which allows of questions and answers and discussion. In addition more formal lectures are presented and Dr. Boucher feels that these procedures have given splendid results.

From Detroit Dr. Vaughan has written as follows:

It not infrequently happens, I am sure, in many of our large city health departments that we, as Health Officers, fail to carry along in our various projects the rank and file of our own employees. Here in Detroit we have not done as well as we should. Our sanitary inspectors as well as our milk and food inspectors have their regular bureau meetings at which they are thoroughly instructed with respect to their own activities, but we have been somewhat negligent in carrying to them the more complete program of the Department of Health, that is, those activities with which they do not have daily contact.

With our nursing personnel the contrary is true . . . We are looking forward to the time when all of our nurses will not only be graduate nurses but also have a certificate in public health nursing . . .

The courses at the University are closely tied up with the Health Department and the teachers are, to some extent at least, members of our staff . . .

For the past 15 years we have had executive staff meetings in my office . . . All the new procedures are outlined at these staff meetings . . . Each responsible sub-chief in turn must carry these programs to his respective bureaus and divisions.

Briefly, to answer your question I would say that the 3 important tools to be employed are: first, regular methodical meetings of the executive staff; second, regular meetings of the employees in their respective divisions; and third, a tie-up with an institution of learning so as to give the employees, especially the nurses, some academic standing for their work.

Like Dr. Vaughan, we have regular staff conferences of the bureau directors in the Baltimore Health Department which have certainly been valuable in integrating the interests of the different health services. During the past 3 years we have been in a state of fairly complete reorganization resulting, in part, from a 33 per cent budget reduction. One of the most profitable projects in our staff education was the assigning of Professor Hiscock's book *Community Health Organization* to each bureau director for a written review of the chapter dealing with his special activity. These reviews included a comparison of the Baltimore program with the recommendations. This staff study, which is being followed by a similar review of the New York State Health Commission Report of 1932, has turned out in many ways to have been more valuable than had been anticipated.

With the establishment of the Eastern Health District in Baltimore as an administrative unit serving slightly less than 10 per cent of the city population, and made possible through the coöperation of the Johns Hopkins School of Hygiene and Public Health and a number of volunteer health agencies with the City Health Department, there has been afforded an opportunity for field education of our public health nursing staff and some of our medical officers. Dr. Harry S. Mustard, who is Health Officer for the Eastern Health District, has been of the very greatest assistance in the development of an entire course of instruction for our 118 public health nurses prior to the generalization of 2 nursing units; a maternity and child hygiene group of about 25 nurses, which has this summer been merged with the other group of 93 public health nurses, who have been carrying district assignments including school, communicable disease, and tuberculosis work. The other large body of employees who, for a number of years, have been receiving

fairly formal instruction, have been the inspectorial group, including the dairy farm and pasteurization plant inspectors, the sanitary and plumbing inspectors and, more recently, a newly established classification of industrial hygiene inspectors. The Bureau of Laboratories has assisted in all these educational projects.

Perhaps the only other educational effort which has been developed is the annual health examination of all of the 411 employees now on our staff who have volunteered to accept these personal health surveys, rendered without cost by a group of department physicians. Quite naturally certain members of the staff have preferred to have the examinations done by their family physicians.

In questioning a group of our stenographic force, I found that one had been responsible for the toxoid inoculation of her sister's child after there had been a considerable delay because the family physician apparently did not believe in the procedure. Another one also told me that her nephew had been inoculated at the time he reached the age of 6 months, in part at least, because of her urging, although she said that 3 other babies who were treated at a clinic and who were children of her sister's close friends, had probably received the stimulus more from the direct publicity campaign of the health department than from casual association with members of the department staff. The clerical force and others in the department take a considerable interest in reading the texts of the weekly 5-minute radio messages, which are broadcast under the joint auspices of the City Health Department and the State Medical Society. A similar interest is taken in the monthly department publication known as *Baltimore Health News*, and in other printed material put out from time to time by the department. There is, however, a definite lack of planning for staff education other than in the instances I have mentioned.

It would seem that health departments in this matter might well learn a lesson from the selling and advertising methods of certain big industries. During the recent years of depression, I am told that a large national electrical supply company made it clear to all its workers that they were potential salesmen and perhaps their jobs might depend on the efforts they put forth toward an increasing sale of the company's products. In the annual report sent to stockholders the company called attention to this effort of the employed staff and indicated that stockholders too might be better assured of continuing dividends should they purchase the products of their own company and mention them to their friends. I know that these efforts resulted in definitely increasing the business of the company and it would seem that it was an educational project which had certain similarities with the problem of selling health education to the staff members of a health department.

Perhaps imagination and initiative are all that are really needed if we are to dramatize to ourselves the possibilities in staff education. At the same time we should realize that a little scientific information, or perhaps misinformation, in the hands of untrained persons may not be without its dangers. Technics in public health education and in salesmanship and advertising are developing, if anything, a little more rapidly than they may be safely assimilated. However, I do believe we may well take a long range view of this matter and try to build in slowly a very firm educational foundation within our health departments.

Solid foundation-laying is excessively time-consuming. Anyone knows this who has watched the demolition of an old building and the preparation for a modern skyscraper. The ancient Vishnu

schists, the rock foundation lying at the bottom of the Grand Canyon, are over 1,000 million years old. The tremendous earth changes that have taken place in the Canyon area, some of which have left no visible trace of themselves, impress one with two quite conflicting thoughts:

The first is the apparent futility of our pigmy-like human efforts in a civilization which itself is the thinnest of veneers on our ageless organic and inorganic inheritance, a civilization which is constantly showing an aptitude for self-destruction; the second is the imperative nature of some inner urge which drives us on to do our utmost, in spite of this seeming futility.

The record of the rocks is clear. Foundation-laying, then, in health education as in other fields takes time, and patience, and more time—with a deal of thinking interspersed as an essential mortar if solidity is desired. We should, even at best, expect mighty and unpredictable forces which will warp, twist, uplift, or flatten out our best efforts. Yet, without taking ourselves too seriously, and conscious of the age-old time-relationships as we see them all about us, each one of us must go on and do his best, and each one in his own way.

Hospital Survey for New York

A HOSPITAL survey for the New York Metropolitan area, sponsored by the United Hospital Fund, and provided for by a grant from the Carnegie Foundation, has been put into the hands of Dr. Haven Emerson, as Director of Studies, and Dr. Gertrude Sturges, as Assistant Director, with Dr. George E. Vincent as Chairman of the general Survey Committee of leading citizens, and David H. McAlpin Pyle as Vice-chairman. The actual prosecution of the work will be in the hands of a study committee composed of the following persons:

S. S. Goldwater, M.D.
Charles Gordon Heyd, M.D.
John E. Jennings, M.D.
Eugene H. Pool, M.D.
Willard C. Rappleye, M.D.
Nathan B. Van Etten, M.D.

The area includes, as well as the City of New York, the Counties of Westchester and Nassau in New York, the towns of Greenwich and Stamford in Connecticut, and all of Essex, Hudson, and Union Counties, and parts of Bergen and Passaic Counties in New Jersey, comprising an area of 1,535 square miles and a population as of 1930, of 10,247,895.

The survey will include in addition to its study of hospitals, a study of the 6 accessory activities in the field of organized care of the sick, as follows: Out-patient services, convalescent homes, Institutions for the chronically sick, Visiting nursing, Medical social service, and Domiciliary medical care.

A feature of this study upon which special emphasis will be placed, is the financial statements of these assembled public utilities, not only from the point of view of the current or annual balance sheet, but in the form of a stockholders statement of the total investment in land, buildings, endowment, etc. It is hoped that on the basis of this survey an approximate estimate of the projecting needs of the 18 million people who will be occupying this area in 1965 may be described.

Routine Use of a Modified Eijkman Medium in the Examination of Oysters, Crabmeat, and Other Substances

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THE Eijkman test for *Bacillus coli* has been used and studied in the laboratories of the Bureau of Bacteriology of the Maryland State Department of Health since 1929. One of the authors (Perry, 1929), first applied the test to a number of cultures of *Bacillus coli* recovered from oysters and oyster bearing waters. He found "such cultures invariably produce indol from a suitable medium and were able to ferment the dextrose of Eijkman broth with gas at 46° C." He also found that "only 11.2 per cent of 223 cultures of lactose-fermenters (coli-aerogenes group) from oyster and water samples from four areas were *Bacillus coli*. The four areas differed geographically, topographically, and in respect to their sanitary features. The presence of *Bacillus coli* was found in close agreement with probable fecal pollution."

In Maryland, a systematic study of oyster producing waters and the oysters themselves has been in progress since 1925. It became obvious from these studies that an evaluation of the coli-aerogenes group content of oysters is of little, if any, practical value (Perry, 1928). While considerable difference of opinion exists among bacteriologists and others whether *B. coli* or the coli-aerogenes group should be used as an index of pollution in drinking waters, in the field of fecal pollution in oysters and oyster waters the coli-aerogenes group has been found unsatisfactory as it gives information of little if any value for oysters and of comparatively less value than *B. coli* for oyster bearing waters. For the past year (1934), determinations of the *B. coli* content (score and probable number) of oysters using the modified Eijkman medium of Perry and Hajna * (1933), and standard lactose broth (American Public Health Association) have replaced those of the coli-aerogenes group. As yet, no attempt has been made to correlate these data with pollution. Most of the samples have been taken from waters free of any significant fecal pollution and the *B. coli* scores of the oysters usually have been very low. While the coli-aerogenes group has been much more satisfactory as an index of possible fecal pollution of oyster waters than of oysters themselves, it has not been entirely satisfactory even for oyster waters. The coli-aerogenes group content of many waters of unquestionable purity, from the standpoint of growing oysters, has

* Modified Eijkman Medium †

Dextrose	3 grams
Peptone (Difco)	15 grams
K_2HPO_4	4 grams
KH_2PO_4	1.5 grams
NaCl	5 grams
Dist. water	1,000 c.c.

† If inoculum is by loop or needle, use formula as given. If by pipette, adjust so that final concentration with inoculum will be given.

been far in excess of the amount permitted by the Drinking Water Standards of the U. S. Public Health Service. This experience indicates that *B. coli* would be a much better index of fecal pollution for both oysters and oyster waters than the coli-aerogenes group. The writers also believe that *B. coli* would be just as superior to the coli-aerogenes group as an index of possible fecal pollution when applied to drinking waters.

The Eijkman test has, we believe, many practical advantages as a presumptive test for *B. coli* in oysters, water, crabmeat, and other substances. These advantages have been given by Leiter (1929) and others. That the original Eijkman medium (1904) was not entirely satisfactory has already been pointed out by the authors (1933). More *B. coli* was recovered from fresh human feces using the modified Eijkman medium referred to than could be recovered with lactose broth. In this paper, data are presented on the practical application of this test to samples of oysters, water, crabmeat, etc.

METHOD OF EXAMINING OYSTERS, ETC.

The method of examination was as follows: Five tubes of each medium (modified Eijkman medium and Standard lactose broth) were inoculated with like amounts of water, oyster shell liquor, etc. In the case of oysters, 5 tubes were inoculated with 1 c.c. each of oyster shell liquor and 5 with 0.1 c.c. (1 c.c. of a 1 in 10 dilution). In most water samples, 5 tubes were inoculated with 10 c.c. each, and 5 with 1 c.c. each. The amounts of other substances used varied according to experience but like amounts were used for both media except where noted. Lactose broth tubes were examined according to Standard Methods of Water Analysis of the American Public Health Association while the method used for the Eijkman broth tubes was that described by the authors (1933).

COMPARATIVE NUMBER OF TUBES AND SAMPLES OF OYSTERS, CRABMEAT, AND WATER IN WHICH FERMENTATION AND CONFIRMATION FOR BACILLUS COLI AND COLI-AEROGENES GROUP OCCURRED FOR EIJKMAN AND LACTOSE BROTH

In Table I comparative data are given for the number of tubes of Eijkman and lactose broth, inoculated with equal quantities of shell liquor from oysters, crabmeat, and water, in which fermentation and confirmation for *B. coli* and other coli-aerogenes organisms was made. On the basis of these data, the following deductions may be made.

The modified Eijkman medium is more selective and efficient for the isolation of *B. coli* than lactose broth. Approximately 6.4 per cent of the lactose broth tubes inoculated were confirmed for *B. coli* while 8.9 per cent of the inoculated Eijkman tubes were confirmed for *B. coli* in spite of the fact that nearly twice as many of the lactose broth as of the Eijkman broth tubes showed gas fermentation. Over twice as many of the Eijkman tubes as of the lactose broth tubes inoculated from oysters and crabmeat were confirmed for *B. coli* while a slightly larger per cent of the standard lactose broth tubes inoculated from oyster waters were confirmed for *B. coli*. Of the lactose broth tubes with gas 18.7 per cent were confirmed while 54.3 per cent of the Eijkman tubes were confirmed.

Since the Eijkman test has been designed to eliminate members of the coli-aerogenes group not *B. coli* it should be expected that many less confirmations for this group would be made from the Eijkman broth tubes. Accordingly, 27.6 per cent of the lactose broth tubes were confirmed for members of the coli-aerogenes group against 14.1 per cent of the Eijkman tubes. These figures include *B. coli* of course. The percentage of non-*B. coli* members of the coli-aerogenes group are 21.2 for

TABLE I

COMPARATIVE RESULTS, BOTH PRESUMPTIVE AND CONFIRMED, FOR *Bacillus coli* AND COLI-AEROGENES ORGANISMS IN EIJKMAN MEDIUM AND STANDARD LACTOSE BROTH FOR OYSTERS, OYSTER WATERS, AND CRABMEAT

	Oysters (shucked) 182 Samples		*Oyster Water 344 Samples*		*Crabmeat * 229 Samples*		*Crabmeat † 78 Samples*	
	Lactose Broth	*Eijkman Broth*	*Lactose Broth*	*Eijkman Broth*	*Lactose Broth*	*Eijkman Broth*	*Lactose Broth*	*Eijkman Broth*
Total tubes inoculated	2,195	2,195	3,239	3,233	891	2,170	801	801
Tubes having gas at 24 and 48 hr.	1,068	422	853	406	288	425	237	126
(a) Tubes having gas at 24 hr.	451	176	375	191	198	328	151	89
(b) Tubes having gas at 48 hr.	617	246	478	215	90	97	86	37
Total confirmations, coli-aerogenes group	890	366	637	352	243	363	196	105
(a) Number of 24 hr. gas tubes confirmed	374	135	338	167	181	301	134	82
(b) Number of 48 hr. gas tubes confirmed	516	231	299	185	62	62	62	23
Total confirmations, *Bacillus coli*	86	204	284	213	56	252	37	80
(a) Number of 24 hr. gas tubes confirmed	42	62	157	141	44	225	31	70
(b) Number of 48 hr. gas tubes confirmed	44	142	127	72	6	27	6	10
Per cent of tubes with fermentation at 24 and 48 hr.	48.7	19.2	26.3	12.6	32.3	19.6	29.6	15.7
Per cent of inoculated tubes confirmed for *Bacillus coli*	3.9	9.3	8.79	6.59	5.6	11.6	4.6	10.0
Per cent of gas tubes confirmed for *Bacillus* coli	8.1	48.3	33.3	51.9	17.7	59.2	15.6	63.5

* Determinations made on 88 samples in lactose and 229 in Eijkman broth
† Determinations made on same samples for lactose and Eijkman broth

lactose broth and 5.2 per cent for Eijkman broth.

Gas was present in about twice as many (34.4 per cent) lactose broth as Eijkman broth tubes (16.4 per cent). Of standard lactose broth tubes inoculated with liquor from shucked oysters, gas was present in 48.7 per cent against 19.2 per cent of the Eijkman tubes. Of the oyster water samples, 26.3 per cent were found to produce gas in standard lactose broth against 12.6 per cent in Eijkman broth, while gas was present in 31.0 per cent of the standard lactose broth tubes inoculated from crabmeat against 18.6 per cent of the Eijkman broth tubes. In routine laboratory work, it is not always possible to read gas production at exactly 24 and 48 hours. In many instances the 24 hours readings represent only 18 hours of incubation. If a full 24 hours incubation had been made, a much larger per cent of the Eijkman tubes doubtless would have been confirmed for *B. coli* and a much smaller residual number, consequently, would have been confirmed after 48 hours of incubation.

From these data, it is obvious that, using Eijkman rather than lactose broth, a bacteriologist has only one-third the number of presumptive tests for *B. coli* to confirm. There is less work involved in confirming presumptive Eijkman tubes than presumptive lactose broth tubes, for on plates made from Eijkman tubes, *B. coli* is often the only organism present while on plates made from lactose broth tubes several organisms of the coli-aerogenes group are frequently present. This necessitates increased effort to select colonies of *B. coli* and to secure pure cultures. It is much more difficult to secure well isolated colonies from lactose broth tubes than from Eijkman broth. Only occasionally are plates, made from Eijkman broth tubes, overgrown. There is, therefore, less than half the work involved in using lactose broth for the routine isolation of *B. coli*.

PROBABLE NUMBERS OF BACILLUS COLI AND COLI-AEROGENES ORGANISMS FOUND IN OYSTERS, WATER, CRABMEAT, ETC., USING EIJKMAN BROTH AND STANDARD LACTOSE BROTH

The probable numbers * of *B. coli*

* Tables for Rapid Interpretation of Fermentative Tube Results, M. H. McCrady, *Pub. Health J.*, IX. 5 (May), 1918.

and coli-aerogenes group organisms in oysters, crabmeat, oyster waters, milk, ice, sewage, and eggs were determined. These data are presented in Table II. *B. coli* was identified in the same manner as already described. In the last column of Table II are given the ratios of the probable numbers of *B. coli* as determined using Eijkman broth to the numbers as determined using standard lactose broth and in proportion to coli-aerogenes organisms as determined using the standard procedure of the American Public Health Association. While these ratios indicate that the Eijkman method, as used, was only half as efficient in detecting the probable numbers of *B. coli* from oysters, salt water from oyster areas, and milk as standard lactose broth, this is not really true. Much of the data prepared in Table II was collected before certain refinements in the Eijkman test were used. It will be observed, for instance, from Table I, that over twice as much *B. coli* was isolated from oysters using Eijkman broth as in using lactose broth. In our earlier work on fresh human feces (1933 results confirmed by recent work) more *B. coli* was isolated using Eijkman broth than by using standard lactose broth. The number of samples of ice, eggs, and sewage is too small to be of much significance, especially since these observations likewise were made before improvements in the Eijkman method had been applied.

A most significant point is the tremendous difference between the average number of *B. coli* in 83 samples of oysters and the average number of coli-aerogenes group organisms. With coli-aerogenes organisms outnumbering *B. coli* 50 to 100 times (depending on the method), comparatively small variations in the probable numbers of *B. coli* as determined by the two methods becomes of comparatively less significance. In oyster waters, the ratio of coli-aerogenes organisms to *B. coli* was 3 to 5 times as great. This is what those with experience in this type of work would expect. In crabmeat 4 to 7 times as many organisms of the coli-aerogenes group as *B. coli* were found.

To the writers, these data signify the tremendous error in trying to evaluate fecal contamination of oysters, in particular, on the basis of the coli-aerogenes group and indicate quite clearly the desirability of using *B. coli* generally as an index of fecal pollution.

SUMMARY AND DISCUSSION

A modified Eijkman medium with incubation at approximately 46° C. has been used for the routine examination of samples of oysters, crabmeat, salt water in which oysters grow, sewage, and other substances.

TABLE II

AVERAGE PROBABLE NUMBER OF *Bacillus coli* RECOVERED FROM OYSTERS, ETC., BY EIJKMAN BROTH AND LACTOSE BROTH AS COMPARED WITH THE AVERAGE NUMBER OF COLI-AEROGENES ORGANISMS FROM LACTOSE BROTH

		Bacillus coli *		*Coli-aerogenes* *	
Substances	*Number of Samples*	*Eijkman Broth (a)*	*Lactose Broth (b)*	*Lactose Broth (c)*	*Ratio a—b—c*
Oysters	83	3.5	9.1	362	1–2.6–103.2
Oyster waters (salt)	229	5.2	9.4	28.8	1–1.8–5.5
Water, fresh (heavily polluted)	11	431,634	107,582	1,109,514	1–0.25–2.6
Ice	6	270.8	1,483.0	1,512.5	1–5.5–5.6
Sewage	3	68,333.3	93,333.3	93,333.3	1–1.4–1.4
Eggs	2	14,000+	7,700+	14,000+	1–0.55–1
Milk	15	49.3	144.7	369.3	1–2.4–7.5
Crabmeat	135	628+	418+	2,741+	1–0.67–4.3

* Probable Numbers per 100 gm.

NOTE: Acknowledgment is made of examinations by bacteriologists as follows: A. A. Hajna 123, H. B. Robinson 192, J. H. Dingle and A. A. Hajna 117, T. F. Dozois and R. T. Humiston 25, S. R. Pence 20, C. A. Eddy 7.

The presumptive and confirmed tests for *B. coli* (so-called fecal type) and organisms of the coli-aerogenes group were made on 182 samples of shucked oysters, 344 samples of salt water from oyster areas, and 307 samples of crabmeat. In this work the term "presumptive" refers to any amount of gas produced in either lactose broth or dextrose (Eijkman) broth. In regard to the shucked oyster samples, approximately 3.9 per cent of 2,195 inoculated lactose broth tubes confirmed for *B. coli* against 9.3 per cent of the same number of tubes of Eijkman medium. Of 3,239 and 3,233 tubes of lactose and Eijkman broth respectively inoculated with salt water from oyster areas a little over 2 per cent more of the lactose broth tubes than the Eijkman broth tubes (8.79 and 6.59 per cent respectively) confirmed for *B. coli*. Of 166 samples of crabmeat inoculated into lactose broth 5.1 per cent of the tubes were confirmed for *B. coli* against 11.2 per cent of 307 samples inoculated into Eijkman broth. On the whole, gas was present in less than half as many Eijkman tubes as lactose broth yet more (2.5 per cent) *B. coli* was recovered from the Eijkman broth tubes than from lactose broth tubes, thus establishing the superiority of the Eijkman method under the circumstances noted.

In another series of samples the probable numbers of *B. coli* isolated from Eijkman broth and lactose broth were compared with the numbers of organisms of the coli-aerogenes group. The data given in Table II were collected in the earlier part of this study when an incubator temperature of approximately 46° C. was used. The variations are believed to be due to a different bacterial flora in these samples which tend to suppress *B. coli* in the Eijkman medium. On latter samples a *tube* temperature of 46° C. rather than an incubator temperature of 46° C. was used and more *B. coli* was then recovered apparently, by the Eijkman test than by lactose broth. Such a tube temperature was used in some of the 182 samples of shucked oysters in Table I. In 135 samples of crabmeat and 2 samples of eggs the estimated probable numbers of *B. coli* isolated by the Eijkman method were nearly twice those isolated from lactose broth, while in 11 samples of heavily polluted water 4 times more *B. coli* was isolated from Eijkman broth than lactose broth. In 83 samples of oysters, 6 of ice, 3 of sewage, and 15 of milk greater numbers of *B. coli* were isolated from lactose broth tubes; in oysters (shell) 2.6 times as much, in salt waters from oyster areas 1.8 times as much, in ice 5.5 times as much, in sewage 1.4 times as much and in eggs 2.4 times as much.

The opinion of the authors from their rather extensive experience, is that the Eijkman test, properly adjusted, is a valuable presumptive test for *B. coli* which organism they believe should be the one generally used as an index of fecal contamination of oysters, crabmeat, water, and other substances.

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The Community Program of Health Education*

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THE health education of an individual is not restricted to those words either spoken or written which are specifically directed toward him for that purpose any more than his character is completely determined by what he hears in church. One's ethical behavior and one's health behavior are both determined in large measure by the customs and practices of the race, the community, and the family. The child gradually recognizes and begins to participate in these practices. Standards of honesty and cleanliness are set by the attitudes and behavior of family and associates more than by theoretical considerations of ethics and hygiene.

The realization of these facts tells us two things: (1) All the experiences of the individual must be considered in determining the nature of his health education. (2) Health education to be most effective must address itself to the whole community rather than to a single group or a single age level. Let us consider the health education activities of the school, the health department, and the private health agency.

THE SCHOOL

The public school recognizes that it affects the health education of the child through all of his experiences at school and through those health experiences outside of school which are initiated or modified by school activities. This means that the school is concerned not only with health instruction and with training in hygienic living while the child is at school, but also with the child's experiences in having physical defects corrected, and in maintaining and improving his health practices in the home, in so far as the school can beneficially influence these experiences.

The school contributes to the health education of the pupil in two essentially different ways: (1) through direct health training and instruction, (2) through those school activities which form a part of the child's health experience. Let us review briefly the scope of each of these two phases of the health education program.

A. DIRECT HEALTH INSTRUCTION AND TRAINING

1. Direct Instruction in Hygiene

The oldest and most universally recognized phase of health education is instruction in hygiene. When the child enters the public school he is under the authority of the home and school and his health habits reflect direct training. When he leaves the public school he is about ready to leave the authority of the home also and his health behavior must be supported by a knowledge of

* Read at a Joint Session of the Public Health Education and Child Hygiene Sections of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 3, 1934.

the facts of hygiene. We must begin with health training and gradually through public school experience we must place a foundation of knowledge beneath these health practices which will support them with wise and intelligent adaptations in the years to come.

In the first 3 grades the knowledge content of the program is relatively unimportant and no formal or set health instruction need be prescribed. Beginning with grade 4 and continuing to the end of junior high school, the present tendency is to provide specific instruction for at least 2 class periods a week with a program which is sufciently different and new in approach each year to make the subject, with its necessary repetitions, fresh and interesting to the pupil.

For example, in grade 4 the child may be chiefly concerned with "*What* is health training," or the way in which the detailed rules of the health game are carried out. In grade 5 he may be interested in "*Why* these health practices are desirable." In grade 6 he studies biological cleanliness and its relation to the health of the individual and the family. In grade 7 he studies community hygiene, in grade 8 elementary descriptive physiology and in grade 9 physiology and foods with home nursing for the girls and first aid for the boys.

In the senior high school there will be some direct health instruction, but it is doubtful whether a regular period for informational hygiene should be assigned throughout these 3 years. It may be better to contribute to health instruction through other subjects, particularly science, social science, and biology, and to have a single course in health problems for those high school seniors who are not going to college. Training in physical education has an increasing influence upon the maintenance of healthful living as the child advances in the grades.

It must not be thought that the classroom period of health instruction is restricted to the presentation of information. It is used to provide an opportunity for centralizing all educational activities. Through it pupil activities of vital interest are developing and in it health experiences are reviewed.

2. Integrated Health Instruction

In addition to the regularly organized instruction in hygiene, health is taught to a considerable degree in connection with the teaching of other subjects. This may be done by using health facts in connection with such subjects as art, arithmetic, and geography, or by integrating health with the other subjects in units of work where the partitions between the different subjects have been removed.

It has occasionally been urged that complete health instruction could be developed in this way, but authorities now generally agree that direct instruction is needed and that integration is more successful with direct instruction than without it.

3. Health Training Through Watching Growth (Monthly Weighing)

Regular and continued growth is a sign of health and the child who is interested in growing is willing to follow those health practices which will help him grow. Monthly weighing has come to be a valuable means of health training.

4. Health Training Through Inspection and the Recording of Health Practices (Morning Health Review)

The training of the pupil is effectively developed by the regular checking of cleanliness and neatness and by keeping records for short periods of the success of the class in maintaining different health practices. For this reason it has become a nearly universal practice to use a few minutes at the opening of school in the morning for purposes of health training.

These are the 4 important procedures

in direct health training and instruction. Let us now consider those other activities of the public school which affect the child's knowledge but more specifically influence his attitudes and practices.

B. OTHER SCHOOL ACTIVITIES WHICH DETERMINE IN PART THE CHILD'S HEALTH EXPERIENCES

1. The School Presents Its Program to the Home

The school has a program of instruction and standards of behavior which the child is expected to meet. Parents want to know what the program and standards are and what progress the child is making in the different problems of behavior and in the different subjects of instruction. The school tells them what it is trying to do from year to year in the health training of the child. The activities of the school in establishing home and school relationship and coöperation directly affect the pupil's health experiences.

2. Health Examinations

Health examinations should be essentially educational in nature and not merely free medical or diagnostic service devoid of educational value. Here the child comes to see the limitations of his bodily mechanism and here he learns from a new angle the relationship between his health and his health practices. Here it is that the child should learn to appreciate scientific medicine and the service of the medical profession in such a way that he may be willing to make a wise use of medical service throughout adult life. If this one objective of the school health program were reached it would open the door to unlimited opportunities for health improvement through medical service.

3. Correction of Physical Defects

This activity is a continuation of the processes which began with the health examination, and the pupil's experience will definitely affect his willingness to secure medical assistance in the future and his attitude toward physicians, clinics, hospitals, and care of his body.

4. Communicable Disease Control

The school is primarily concerned here with the prevention of disease, but the actual situations which arise in the school in connection with this activity provide better teaching opportunities than can be found in the theoretical discussion of disease, because they are related to actual experience.

5. Physical Education

The physical activities of children contribute to health directly but physical education also contributes to general education. It aims to train the body in posture and bodily mechanics; to establish a fondness for games, big muscle activity, and habits of regular exercise; to provide relaxation in the school day; to develop special skills; to correct marked defects of posture through work with individual children; and to contribute to personality, social adjustment, character, and mental health. Success in these activities serve as one measure of health, and the desire to succeed in physical accomplishment is an incentive to the development of health habits.

6. The Maintenance of Hygienic Conditions in the School Building

The hygienic condition of the school plant tells the child whether the school authorities really believe in the principles of sanitation which they teach. It accustoms him to good or poor standards as the case may be. The cleanliness, ventilation, lighting, and seating, together with proper provision for supervision of toilets and bubbler fountains, contribute to the health education of the child.

7. School Lunch

The mid-morning lunch and the noon lunch, where the latter is taken at school, provide definite opportunities for health training in the selection of food and in the hygiene of eating.

8. Hygienic Arrangement of the School Program

More and more attention is being given to the effect upon the health of the pupil which is produced by the way in which the general school program is conducted. The type of instruction and the attitude of the teacher toward the pupil have definite effects upon his mental health. The length of the recitation period, the provision of brief periods of relaxation, the sequence of studies, the nature of discipline and punishment, the number of pupils in a room, the nature and conduct of examinations, the extent of extracurricular activities, and the wise selection of textbooks or source materials, all have an effect upon the health of the child and upon his standards of conduct.

A wider recognition of the nature and breadth of the school health education program will eventually lead to its proper supervision and to the coördination of the various activities from the viewpoint of health education.

THE HEALTH DEPARTMENT

The important health education program of the health department is not as uniform in its operation or as easy to describe as that of the school department. It *is* possible to indicate the health education responsibilities of the health department and the tools or agencies through which it may operate.

The responsibility of the health department for educational activities may be divided into four parts:

1. To keep the public informed concerning the work, the services and the needs of the health department in order to maintain the public support which a service agency of the government needs in a democracy.

2. To instruct special groups, such as food handlers or householders, and the public generally concerning those procedures involved in the prevention of the spread of communicable disease.

3. To promote hygienic living on the part of the general population through educational activities of various sorts.

4. To assist the health education program in schools by supplying health information concerning the city or county, and in helping to arrange field trips for older pupils to demonstrate the activities of the health department.

The health-education activities of health departments may be:

1. Through direct individual health instruction by employees, such as physicians, nurses, and sanitary inspectors, in the conduct of their duties.

2. Through providing or arranging for instruction of small organized classes in such subjects as home hygiene, the care of the sick, first aid or the care of children.

3. Through providing speakers by means of an organized speakers' bureau, operated in coöperation with the medical and allied professions.

4. Through newspaper publicity, involving news items, feature stories, and editorials.

5. Through the radio.

6. Through printed matter, including reports, bulletins, leaflets, pamphlets, handbills or form letters.

7. Through various types of visual instruction, including moving pictures, posters, demonstrations, exhibits.

8. Through the educational use of health surveys.

9. Through the direct instruction of food handlers yearly when each receives his card.

PRIVATE AGENCIES

The private agencies have essentially the same health education tools with which to work as does the health department. The personnel is varied but includes the medical staff of medical institutions, the nursing staff of medical and nursing organizations and health educators in medical institutions, tuberculosis associations, and social agencies, particularly those working with young people.

We cannot describe here the many varieties of national, state, and local agencies contributing to the public health. Their educational services lie mainly in two fields: (1) the promotion of new health activities and the development of public support for them; (2) the development of educational

activities in the field of special interests in order to secure more rapid advancement in this field than would otherwise be possible. These agencies develop support for the health department and the school health program. They often stimulate and make possible more effective health work on the part of the official agency.

We need, and we shall ultimately develop, standards and methods of measurement of the quantity and quality of health education activities. At present the school health program has made more progress in this direction than has the program of popular health instruction.

We have seen 3 different phases of the problem of health education for the community, and we recognize that there are different technics involved in the 3 types of activity. How can the activities of the health department, the school department, and the private agencies be welded into a unified program of health education? It may be that there will eventually evolve some plan for the use of a specialist in health education who can serve all these different groups.

At present the most feasible development is, perhaps, the health education council in which all of these groups are represented and through which the various phases of the program may be interrelated.

Schick Reaction

IN a study of the relation of the Schick reaction to antitoxin titer,[1] 47 military recruits were tested with 2 dilutions of Schick toxin, one 1–600 and one 1-300. A second toxin was also used, dilution 1–500, and for all the dose given was 0.1 c.c. Estimations of blood antitoxin were made by Ehrlich's guinea pig method. Only those negative to 1–300 dilution had more than 1/30 unit antitoxin per c.c. in blood. Those negative to 1–600 and 1–500, yet positive to 1–300, had less than 1/30 unit, and often as low as 1/60 unit. A negative test with usual dilution does not correspond with 1/30 unit per c.c., the amount generally considered requisite to give sure immunity.

In a later study [2] the authors have attempted to determine the effect of intercurrent infective diseases on the Schick reaction. In a study of 54 cases it was found that an attack of influenza may lower the immunity against diphtheria and the authors suggest this as an explanation of the severity of diphtheria when complicating influenza. According to a number of authors, measles has no effect in lowering the immunity against diphtheria.

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Chlorination of Los Angeles Water Supply*

R. F. GOUDEY

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LOS Angeles has the distinction of being one of the few cities having no sewage laden streams or lakes tributary to its water supply. Chlorination is practised entirely as a precautionary measure for protection from various but important seasonal factors. Particular problems are recreational use of remote watersheds, effective storage for distribution, contamination from seagulls and other birds, safeguarding of local gravity conduits, large and sudden variations in flow due to irrigation demands, and isolation of treatment plants because of great distances separating them. Special developments include automatic chlorination, intermittent treatment and a coördinated system of control.

The chief water supply of Los Angeles is from the Owens River Aqueduct, itself over 250 miles in length and which drains the east slope of the Sierra Nevada range from Mt. Whitney, the highest point in the United States, for a distance of 150 miles north to Mt. Lyle, which is farther north than San Francisco. The snow capped Sierra peaks and glacial laden crags at elevations of 9,000′ to 14,000′ constantly feed alpine streams with water of pristine purity.

In the Mono and Inyo National Forest during each summer season nearly a million hikers, campers, fishermen, and hunters use the watershed. The maximum recreational use has been facilitated by excellent highways leading to extensive mountain roads and trails, organizations of pack train outfits, and regular airplane transportation to 5 mountain landing fields. On its way to the desert are meadows, flats and valleys which likewise are used for recreational purposes. The average elevation of the desert floor at the foot of the mountains and above the intake is about 4,000′. The aqueduct not only collects the mountain streams but also springs which emerge at the base of mountains and the drainage from the valley floor. There is some grazing of cattle along the lower slopes of the mountains and there are 4 small towns on the valley floor widely separated. The resident population on the watershed is 1.8 persons per square mile.

As might be expected, bacteriological samples of the supply at the aqueduct intake showed the presence of slight contamination but only to the extent of 25 per cent of the samples with 3 or more tubes positive and 30 per cent of 10 c.c. portions positive. Since no sewers discharge into any of these streams it becomes apparent that very few large cities have supplies with as low a contamination.

* Read before the Public Health Engineering Section of the American Public Health Association at the Sixty-third Annual Meeting in Pasadena, Calif., September 3, 1934.

The aqueduct collects the entire flow of the Owens River which formerly discharged into Owens Lake. It starts out as an unlined canal, changes to an open concrete channel, and enters Haiwee Reservoir 60 miles below the intake. Haiwee Reservoir is made up of 3 narrowly connected sub-reservoirs giving effective storage of 6 or more weeks, which apparently removes a large portion of the bacteria entering with the aqueduct. There is no resident population on the watershed nor is hunting or fishing allowed. It is a cold, bleak location in the winter and is scorching hot in the summer. Bacteriological analyses indicate that the supply at the outlet of Haiwee Reservoir meets U. S. Treasury Department Standards. In fact, during the past year there were no samples having 3 or more 10 c.c. tubes positive, and less than 2 per cent of the 10 c.c. portions were positive.

The aqueduct from Haiwee to Fairmont Reservoir, 140 miles downstream, is covered, with no opportunity for surface or other contamination to enter. Fairmont Reservoir, likewise located on the desert, has no resident population or recreational use. It is at elevation 3,000' and supplies power plants in San Francisquito Canyon which in turn discharges into Dry Canyon Reservoir, still outside the City of Los Angeles. There is no opportunity for contamination of the supply at Fairmont or Dry Canyon Reservoir except through birds.

The main aqueduct supply in Dry Canyon feeds Upper and Lower San Fernando Reservoirs. A portion, however, is diverted above Upper San Fernando Reservoir through the Maclay High Line to the northeast side of San Fernando Valley. This supply is continuously chlorinated with 2 automatically operated chlorinators treating flows varying from 6 to 60 second feet. It has water injector pumps in duplicate with a gas engine pump standby. The Maclay High Line is a gravity conduit and chlorination is necessary to counteract any seepage which may enter it from local sources as well as to overcome contamination likely to enter at Dry Canyon and Fairmont Reservoirs. It is proposed in the future to install ammoniation equipment on this line to carry residual chlorination to its terminal reservoir.

Upper San Fernando Reservoir has a watershed of about 9.0 square miles with less than 0.3 persons per square mile. A railroad crosses the north side of it. This reservoir is subject to contamination following periods of heavy rainfall from surface run-off occurring on the average of about 2 weeks out of the entire year. Chlorination is admittedly important during such times. The supply from Upper San Fernando divides, one portion going directly to Lower San Fernando for delivery to the main portion of San Fernando Valley and the city proper, and the other through a high line on the northwest side of San Fernando Valley leading to Chatsworth Reservoir. Water is used directly out of this line and consequently is continuously chlorinated at the Chatsworth High Line station. A third chlorination station is located at the outlet of Lower San Fernando Reservoir.

GENERAL LAYOUT OF CHLORINATOR STATIONS

In all, the city has installed 15 chlorination stations, although the number now in operation is 8. It has had as many as 31 vacuum automatics in operation at one time. The Mechanical Engineering Division has worked up a schematic arrangement for varying degrees of automatic control from Venturi or Pitot tubes. Features of the Los Angeles practice include: (a) cranes for ton containers; (b) a drip pan under the ton containers in which water is circulated from the tray to collect moisture from the sides of the container, prevent it from running into the scale

pans, and provide the necessary latent heat for evaporation of chlorine at lower temperatures; (c) water injector to carry waste gas from cylinders into the sewer; (d) differential converters from Venturi control leads converting positive pressures into corresponding vacuums; (e) connections to water leg on gas orifice to vary chlorine feed; (f) gas regulation valves; (g) a direct low voltage system with necessary relays and switches to cut chlorinators in and out to keep in step with the flow to be treated; (h) water injector supply automatically operated and in duplicate with a gas engine driven pump for automatic emergency use; and (i) manifold chlorine application points.

CHATSWORTH HIGH LINE CHLORINATION STATION

The Chatsworth High Line station consists of four 300 lb. machines where the flow in a gravity conduit varies from 9 to 90 second feet. All the piping arrangements are overhead—black iron pipe is used for chlorine lines, and hard rubber pipe for solution lines. The chlorination solution is discharged into the gravity conduit at 3 points. In the second room of this station is located a device designed and constructed by the department which converts float elevations in the conduit to vacuum differentials which operate the chlorinators. Electrical equipment changing the number of chlorinators in operation and injector pumps is located in the same room. The injector pumps are in duplicate with a 3rd gasoline unit which operates either when the electricity goes off or the pressure in the injector water has decreased below an operating limit.

Water from the Chatsworth High Line discharges into Chatsworth Reservoir where the storage capacity is sufficient for over a year. This reservoir is fenced and although a chlorinator station is constructed at the outlet it has never been found necessary to use it.

SAN FERNANDO CHLORINATION STATION

The 2 main lines from Lower San Fernando Reservoir, 54″ and 72″ in diameter, respectively, are treated at 1 station. There are 8 machines with a chlorine capacity of 2,000 lb. per day. The combined flow in both lines is 329 second feet. This station was constructed in 1925 and is automatic. On the lower floor are the duplicate water injector pumps and a standby gasoline driven injector pump for the purpose of operating when the power is interrupted. This emergency unit has actually performed on a number of occasions during serious power interruptions. Converter equipment is located likewise in the basement. Storage in Lower San Fernando Reservoir amounts to 30 days or more and it is rare when the water needs to be treated. As a matter of precaution, however, it is operated continuously during the winter and 30 days following the last rain of the season. There is a saving of $1,000 a month when chlorination is discontinued at this station, although this monetary consideration has no influence whatever on when the plant runs or is shut down.

AQUEDUCT CITY SUPPLY

The main supply for the city proper after leaving the chlorination station at Lower San Fernando is conveyed across San Fernando Valley to reservoirs on the mountains south of San Fernando Valley and north of the city proper. Stone Canyon Reservoir is the most westerly terminal reservoir. It has a storage capacity sufficient for over a year. No one lives on the watershed, and it still has the indigenous shrubbery on it. A chlorination station was located at the outlet but has not operated for 2 years because the water, even during storms, complies with the Treasury Department Standards.

A second terminal reservoir system is Upper Franklin and Lower Franklin Reservoirs. Upper Franklin Reservoir

is small, there being practically no storage, and although it is surrounded by a complete drainage system there are times during heavy run-offs when its capacity is exceeded. Lower Franklin Reservoir is adequately protected against surface water along the west margins and the drainage area above the reservoir. A chlorination station is located below this dam and is operated during the rainy season to take care of possible contamination which might enter the barren slopes on the east side of the reservoir.

A third terminal reservoir system for the aqueduct is in Upper and Lower Mulholland Reservoirs back of Hollywood. A chlorination station of the most recent design has been constructed to treat water from both reservoirs. It is a 2 story building, the upper floor being divided into 3 rooms. The first is for chlorine cylinders, scales, and the operator's desk. It is equipped with drip pans and blow-off lines. The second room contains the 5 fully automatically operated chlorinators, with flexibility of operation by any chlorinator to any of the 3 lines to be treated. The converters are located in this same room on the other side from the scale beams. In the third room are the duplicate injector pumps, electrical control devices for automatic operation, and the Venturi meters. In the basement are the Venturi tubes and the manifolds through which chlorine is applied at 9 different points from a hard rubber header into the water lines. The efficacy of this method for applying chlorine has also been proved at the Franklin Canyon chlorination station.

Intermittent operation of the chlorinator at Franklin and Mulholland Reservoirs, together with the discontinuance of chlorination at Stone Canyon, has proved satisfactory in that at all times the water as delivered to the consumer meets the Treasury Department Standards. Bacteriological samples for the past year of the aqueduct supply in the city proper indicate 1.95 per cent of the 10 c.c. tubes as positive, and 0.80 per cent of the samples show 3 or more tubes positive.

LOS ANGELES RIVER SYSTEM

One-fourth to one-third of the city's supply is still derived from the original source before the time of the aqueduct, consisting of wells and galleries in the Los Angeles River at the mouth of San Fernando Valley. One gallery has a 4½ mile gravity conduit leading to Silver Lake Reservoir and 2½ miles additional gravity conduit leading to Elysian Park Reservoir. The second gallery, known as Crystal Springs, has 4 miles of gravity line leading to Buena Vista Reservoir and an additional length of 2 miles to Bellevue Reservoir. In 1919 both galleries were equipped to take in surface water from the Los Angeles River. Chlorinators of a now obsolete type were installed at that time but in a very crude manner.

Chlorinators were later installed at the inlet of Bellevue and at the outlet of Silver Lake Reservoir. The gravity conduits for the most part follow hillside locations, but in other places pass through paved streets where sewers cross over or under. Bellevue, Silver Lake and Buena Vista Reservoir have now been protected against surface run-off and the conditions now on the Los Angeles River system are entirely different from those formerly existing. No surface water is taken and the raw water from both galleries is clear and safe. Manual chlorination equipment near the upper ends of both galleries was installed in 1930 but residual chlorine carried only 1,500′ below. It was found that slight contamination was entering between the chlorinators and the terminal reservoirs. In 1933 the River Chlorination Station was converted into a full automatic ammoniation and chlorination plant with marked results.

The station is located where both lines come near together, one is automatically operated from Pitot tubes for both the chlorinator and the ammoniator, and the second is operated from vacuum differentials produced by a mechanism operated by a float in the gravity conduit. Residual chlorine is now carried to all the reservoirs served by these gravity lines. It has permitted the total discontinuance of chlorination at the Bellevue and Silver Lake Stations. Bacteriological analyses of the treated river supply show 0.69 per cent of the samples having 3 or more 10 c.c. tubes positive and 1.31 per cent of the 10 c.c. portions positive.

MISCELLANEOUS

The design of the buildings is an important feature. The first chlorination stations were merely shacks. The stations built since 1927 are permanent, substantial and artistic. Trucks with ton containers can drive back into the station and be unloaded with cranes. The older type of this station is typified by the abandoned station at Silver Lake.

In order to be able to treat reservoirs with chlorine a chlorine barge was constructed which could travel in 4 directions and diffuse chlorine solution as desired. This equipment is being tried out at Silver Lake about once a year in an effort to cope with algae which are not readily controlled by copper sulphate. It has not yet found a place in regular routine control.

The department maintains a portable chlorinator mounted on a trailer consisting of the following equipment: 1 vacuum-type chlorinator with full range of orifices, 10 h.p. gasoline engine, 30 gal. per min. pump, 220/440 volt motor, scales for chlorine cylinders, cooling facilities for chlorine tanks under high rates of chlorine withdrawal, a full line of hydrant pipe fittings, gages for water and gas pressures and gallons per minute pumped, and a series of hoods that are placed around the whole trailer while it is being hauled from place to place. This equipment has been successfully used in all emergency operations such as treating new mains when trenches have been flooded and emergency work during the Long Beach earthquake.

The department 2 years ago spent considerable time in testing out a residual chlorinator which automatically varies the flow according to the demand in the water as well as the varying flow. Considerable development needs to be done on such equipment but it is felt that the sooner it is perfected the safer and more reliable will chlorination be.

A special cabinet, consisting of orthotolidine standards using 100 c.c. matched Nessler tubes read against a blue light under white glazed glass of samples representative of 20 minutes contact between the time of chlorination and testing, enables the operator to get consistent results and vary the chlorine dose as required.

Discussion

S. M. DUNN

Bureau of Water Works and Supply, Los Angeles, Calif.

THE first practical installation of apparatus for the application of chlorine to domestic water in the United States seems to have been made about 1910. This was in the remote East and antedates the first installation on the Los Angeles system by approximately 5 years. This first installation on the

Los Angeles system was located on the Los Angeles River supply, and the equipment was of the dry gas feed type. As Mr. Goudey has mentioned, the installation was crudely made and the building was not elaborate, but it was of concrete construction, and owing to the newness of the process of chlorination and to the short period of development of the equipment, no large amount of money was spent on architectural embellishment. We must remember, however, that the site of this installation, which is now surrounded by a well kept park, was then covered by a wilderness of brush and could only be reached by several miles of damnably rough roads.

Owing to the lack of experience of the builders of the then existing chlorinating equipment—and the experience gained to date by some of the present builders does not seem to me to have been phenomenally productive of practical equipment—this early chlorinator soon developed a variety of ailments which the busy engineers of the department could not take time to diagnose or combat effectively. Consequently, this machine was replaced in 1920 by one of the pressure solution feed type, which was supplied with injector water from a gravity line and treated water in a gravity conduit.

In 1923 the first vacuum type machine was installed. This installation was made at the upper end of Lower Franklin Reservoir and the equipment was placed in a tile roofed concrete building of not entirely unpleasing appearance.

In 1925, 2 more machines of the pressure type were installed on the outlet from Silver Lake Reservoir. This reservoir was at that time an important storage unit, but was located in a rapidly growing district and was not then, as now, protected from surface contamination by barrier walls, fences, and adequate storm drains.

From that time on there has been steady improvement, not only in the equipment available for installation but also in general elaboration of plant layout and in the buildings that have been provided by the department for housing the equipment. This improvement has synchronized quite closely with the general increase in understanding, not only here but in the water works field at large, of the importance of reliable chlorination as a safeguard to public health.

All of the later plants have been made fully automatic, not only to keep down labor expense but also on the theory that if chlorination is necessary at all every practical precaution should be taken to see that the application is continuous and accurate. As Mr. Goudey has stated, automatic control has been extended to include not only the chlorinators themselves but also the equipment for switching the machines and the pumps for supplying the injector water. However, it seems well to state that we are of the opinion that these latter elaborations are more fully justified than his statement that the equipment at Lower San Fernando had "actually operated" would seem to indicate. In fact, it has been found that at times of heavy rainfall, when the danger of surface run-off contamination is greatest, the gasoline engine driven injector water pumps are apt to operate because of failure of electric power. During the deluge of last New Year's Eve, the Maclay and Chatsworth Inlet plants, so equipped, were subjected to power outages of 140 minutes and 105 minutes duration, respectively, but there was no interruption in the application of chlorine.

Our experiments with the residual controller soon disclosed the necessity for more elaborate means for bringing about adequate distribution of the dose over the whole cross-section of the main at the application point, if the main exceeds 18" in diameter. The opera-

tion of this controller is based on the theory that the residual chlorine in samples taken from the main at a distance of 500′ to 1,000′ down stream from the plant can be used to initiate a sequence of control of the chlorinating equipment. At the plant where the experiments on this controller were made, either 2 or 3 application tubes were in use at one time, but it was found that with this small number the controller would shift almost continuously, when it was in working order, owing to the wide variation in the residual chlorine content of the water at the sample point. In fact, a series of samples taken in rapid succession with constant flow and dosage would show residuals running from zero to 0.5 p.p.m. A manifold connected to a total of 9 application tubes was then installed and it was found that the consistency of the residual readings was greatly improved with consequent improvement in the operation of the controller. The department now has on order another controller of this type, the design of which has been improved in a number of ways, with which we expect to get much more satisfactory results.

On the whole, our experience with chlorinating equipment seems to indicate that available equipment is not built in units of sufficient capacity and that the range of automatic control is much too limited. This latter deficiency makes necessary the installation of a multiplicity of units, and in some installations where the flow varies over a wide range, the installation of auxiliary equipment to shift the load from one machine, or group of machines, to another. This added complication would be eliminated if the producers of chlorinating equipment would supply machines of larger capacity and greater range of automatic control.

This deficiency in capacity and range is well illustrated at the Chatsworth Inlet Plant, where it is not at all unusual for the flow to vary from 24 to 102 cu. ft. per second in one 24 hour period and the yearly range in flow is from 9 to 136 cu. ft. per second. To cover this range a total of 4 machines is required. The smallest of these has a maximum capacity of only 80 lb. of gas per day and can only treat flows up to 27 cu. ft. per second. The second machine has a capacity of 150 lb. and is used in the range from 27 to 56 cu. ft. per second. For the upper part of the flow range 2 machines with a capacity of 250 lb. each are used. A more ideal installation would seem to be one in which a single machine of sufficient range and capacity would be used to cover the entire range of flow with a duplicate unit for standby purposes. To produce such an ideal machine, however, an entirely new principle of operation will probably be necessary, but such a machine will no doubt follow the more general realization of the limitations of the equipment now available.

Individual Variations in Immunity*

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IN 1806 Thomas Jefferson paid the following tribute to Jenner: "Future nations will know by history the loathsome smallpox has existed and by you has been extirpated." Similar predictions have been made upon the discovery of protective immunization against other diseases. To date, however, our vital statistics still show deaths from smallpox, diphtheria, and typhoid fever. These smaller organisms, viruses, and bacteria, have not taken readily the path of the dinosaur to extinction.

Failure may be attributed to 3 main causes: (1) the high percentage of people who have not availed themselves of prophylaxis; (2) imperfections of the immunizing agents, and (3) individuals' failure to respond to immunization. This paper is concerned only with the third of these, namely the individual variations in immunity to disease.

The graded school system was designed originally to educate all children equally. It failed in part because children differ in ability to learn. Pediatricians compiled "age-height-weight" tables, but the combined efforts of mother, teacher, and doctor could not fit every child into its mould. It proved easier to suit the tables to the child. A discussion then on differences in immunity should not be amiss.

Jenner recognized second attacks of smallpox. Authentic cases of second attacks of measles have been reported. In 1933 one of our medical students located 28 cases of adult pertussis most of whom had histories of previous whooping cough. With the aid of the cough plate the diagnosis is made more readily now than in the past. Patients who have recovered from diphtheria without treatment are not always immune to the disease. In poliomyelitis it has been found that individuals with severe paralysis may have less immune substance in the blood than normal adults or people with mild attacks of the disease.

Two procedures lend themselves readily to the study of individual differences in response to an immunizing agent, namely smallpox vaccination and diphtheria immunization.

In Peking, in 1927, 75 Westerners and 109 Chinese were vaccinated. This group could be observed carefully and histories of previous vaccinations readily obtained. There were a few unvaccinated people in the group and their takes, which were true primary takes, served as controls. It was found that 5 per cent of the Westerners had secondary takes indistinguishable from primary takes. The interval between takes varied from 1 to 20 years. Of this group, 9 gave a history of 2 takes, 2 of 3 takes, 1 of 4 takes, and 3 had

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scars from several takes. Others had reactions varying from typical immunity reactions to more marked vaccinoids. About 20 per cent showed degrees of poor immunity production.

Of the 109 Chinese vaccinated 9 per cent showed secondary takes equal to primary reactions, and 21 per cent showed poor immunity production. One of the Chinese with marked pocking had a typical take. Other individuals in the group of both foreigners and Chinese had never had anything but an immune reaction following an original primary take.

That these findings are significant has been demonstrated by Lennox [1] of the Peking Union Medical College. In his survey of the incidence of smallpox among missionaries in China he received reports on 111 cases with 28 deaths, and was able to get detailed reports from 30 families reporting 51 cases of smallpox. Fourteen of these were fatal and 37 recovered. One fatal case had been successfully vaccinated 3 weeks previous to his death. Of the 37 cases who recovered, 16 had been successfully vaccinated in the past; 4, more than 15 years previously; 3, from 5 to 15 years previously; 1, 4 years previously; and 3, 1 year previously. Twelve had been vaccinated once, 3 twice, and 1, 3 times. From his own figures and a review of the literature Lennox estimates that the chance of contracting smallpox after exposure is 18 in the unvaccinated to 1 in the vaccinated.

If we review our results in diphtheria immunization we will find a similar state.

New York observers found that approximately 88 per cent of adults in the city of New York were Schick negative without immunization. In rural New Jersey, on the other hand, only 29 per cent were Schick negative. For the past several years the medical and dental students at the University of California have been Schick tested and have averaged about 30 per cent negative, showing a rural rather than an urban type of immunity. That they had an inherent capacity equal to the urban group was evinced when they were given very small doses of toxoid. Eighty-five per cent of the Schick positive group were Schick negative 6 months after 0.1 or 0.2 c.c. of toxoid in 2 or 3 injections at 2 weeks interval had been given. With very slight stimulation a figure resembling that in rural New Jersey was changed to a figure like that in suburban New York. Some of these positives were immunized by a repeat series, usually of larger doses. Everyone who has had experience with the immunization of adults, however, has found a certain percentage very resistant to immunization or readily reverting to the Schick positive state. It was interesting and surprising to find that these individuals, resistant to immunization, frequently gave a history of diphtheria in one or both parents. In one case both parents had had diphtheria. This girl was immunized but not Schick tested. She contracted diphtheria after a short service in the contagious unit. The Hirzfelds [3] report a positive correlation between the Schick reaction of parents and children and their respective blood groups. It may be that this group with a deficient immune mechanism is the chief source of our present diphtheria cases. Lennox reports 3 members of one family contracting smallpox 15 months after successful vaccination.

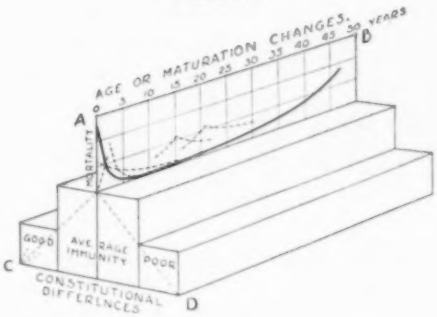
In most instances a negative Schick test means at least 1/30 unit antitoxin per c.c. serum. The Kellogg test is used to determine immunity by testing for antitoxic content of the blood. Here again there is not a 100 per cent uniformity between the Schick and the Kellogg tests. Certain individuals with a negative Schick test will still have a Kellogg test of "not immune." At

Children's Hospital the past 2 years we have done Schick and Kellogg tests before and after transfusions on the recipients and also tested the donors. When a Schick positive child was transfused from a Schick negative donor the usual result was that the recipient became Schick negative but *not* Kellogg "immune." In one instance the *donor* was Schick negative and Kellogg "not immune" and in this case the recipient's Schick state remained positive. In other instances as little as 4 c.c. of blood given intramuscularly from a Schick negative donor neutralized the Schick test of the recipient. One of these donors was tested for antitoxin content and found to have 5 units of antitoxin per c.c. of serum. This donor had never been immunized but had had repeated Schick tests. It is possible, therefore, for two individuals both having become Schick negative without immunization to vary in the antitoxic content of their serum from less than 1/30 antitoxin unit to at least as much as 5 units per c.c. This knowledge becomes significant when human serum is used for specific therapy. In the recent epidemic of poliomyelitis, Schick and Dick tests were done on patients receiving human and animal sera. In patients receiving human serum the Schick tests were negative except in 2 instances where a faint reaction occurred, whereas several receiving sheep serum had strongly positive Schick tests. There were practically an equal number of Dick positives in the two groups.

It is quite evident from the presented facts that individuals vary greatly in their immunity to disease, but, in addition to this, any given individual's immune state is also subject to change. An infant under 5 or 6 months does not usually contract measles, scarlet fever, or diphtheria; yet he is susceptible to smallpox, chicken pox, and pertussis. The erysipelas mortality in the newborn is extremely high; after infancy he withstands the infection well, but as he ages he again succumbs to it. In some diseases like meningitis and tuberculosis mortality among adolescents is high. In practically all epidemics of poliomyelitis the mortality has been very high in young adults. On the other hand, time and age increase the resistance to a great many infections.

In addition to constitution and age, a third factor must be considered, namely, environment. In the rest of the animal world, the law of survival of the fittest rules. Civilization has interfered with this law. Sanitation, isolation, treatment of disease, and immunization affect the natural course of life. The most radical of these interferences probably is artificial immunization. One is justified therefore in raising the question, is there an optimum time for such interference? Vaccination against smallpox is generally advised between the ages of 6 months and 1 year or shortly thereafter, because reactions are less severe and undesirable sequelae less frequent. In a group of infants immunized with toxin-antitoxin a few years ago the best results were obtained when immunization was done between 10 and 15 months of age, both those done before and those done after this age showing a higher percentage of positives.[2]

FIGURE I



ILLUSTRATING VARIATIONS IN IMMUNITY DUE TO CONSTITUTIONAL DIFFERENCES AND MATURATION CHANGES.

In order to summarize or visualize this entire problem the diagram (Figure I) was made.

CD represents constitutional variations. These are shown as blocks rather than curves, for at present we do not know what type of curve individuals arranged according to immunity would take. A and B represent age or maturation changes. It is obvious that AB are averages for all groups. Whether or not curves plotted for C and D separately would be the same is unknown. Other questions arise such as: Is immunity separate and specific for each disease, or can an individual have good immunity to diphtheria and poor toward smallpox or poliomyelitis? If a person has poor immunity as a child, may he by the maturation process change to an individual with good immunity? or does the individual retain his original type throughout life and for all infections? Can the environmental factors alter the individual's immune mechanism? may fatigue, cold, and worry, alter it unfavorably or will diet and vitamins improve it? How much does artificial immunization change the immune state?

Our ignorance of this subject is collossal and an attempt to study it appears futile. However, if we choose to make a careful study of the exceptional cases (both those long-lived and those showing very poor immunity) as to constitution, endocrinology, heredity, longevity, blood grouping, response to various diseases, and so on, we may be able to project the rest of the curve and thus get a better conception of the entire problem.

In the meantime, this crude representation may form the scaffolding to the structure into which we can gradually place our facts until the true picture is complete.

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What's a Committee?

THE ideal committee, of course, consists of three men. One must be the active chairman; one should be in Europe and the third in Timbuktu. The main idea is to keep the three far enough apart so that the chairman will be able to get the job done. There's sense in the story about the small boy who asked his management engineer father: "Father, what's a committee?"

"A committee," answered father, "is a body that keeps minutes and wastes hours."—*Net Results*, May, 1935.

Tuberculosis Control in a Railway Health Insurance Program*

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SINCE 1864 with the completion of the first part of the old Central Pacific Railroad, it was found necessary to provide accident and medical service to the employees of the road, because there were so few practising doctors in the state and almost no hospitals. A monthly deduction charge of $.50 was required of all employees, and this served at that time to cover the expense of such care as the men received. The service was very largely surgical and continued so down to the time of the World War. The steady improvement in the type and extent of care given the patients, together with the better education of physicians generally, and the increased costs in methods of scientific investigation of disease, made this care of patients much more expensive, and the deduction has increased until now it is $1.50 a month. There have been no medical conditions which were not treated in late years, in contrast to earlier years when exemptions were made where patients were found to be suffering from certain chronic conditions.

The present Chief Surgeon takes the very liberal and just ground that people have to work and that, since as high as 31 per cent were found to have correctable defects in the draft group, it was desirable that somebody should correct these conditions before they make serious trouble, rather than take exemptions and have labor try constantly to "put it over" later in any way it could, under claim of industrial accident or disease. In the Company Hospital therefore, conditions are corrected as found. If the defects in an applicant are incapacitating they would prevent the man being employed at all, and there are certain things that have to remain entirely uncorrected like color blindness and deafness, for example. These men are not allowed to work where their defects would be a handicap.

For 22 years Wassermanns have been done on every patient admitted to the hospital, and under the present administration if lues is found it is treated. This is the most significant finding that results from routine examination because the percentage of employees who enter the hospital with positive Wassermanns has increased in 22 years from 3.2 per cent to 6 per cent. Next in importance, as a finding from routine examination, is tuberculosis, for in about half of the cases in which it is found it existed as an unrecognized incident, or if active, its true significance had not been appreciated.

The general examination on entrance to the Southern Pacific Hospital has been the means of uncovering a great deal of unrecognized disease, and has given us some very valuable means of prolonging life and usefulness, as well

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TABLE I

	Lung Tb.	Cavity	One Side	Both Sides	Complications: Pleurisy	Complications: Effusion	Complications: Empyema	Complications: Bronchi-ectasis	Discharged from Sp. Co.	Died in Hospital	Tucson Sanatorium	Ages: 20–35	Ages: 35–50	Ages: 50 and Over	Average No. of Employees	Per Cent Tuberculosis
Executives, Officers and Assistants	14	4	2	0	1	1	1	2	3	1	1	5	5	4	415	3.4
Clerks, Stenographers, and other office Employees	128	26	9	3	20	4	0	6	40	5	18	77	36	15	7,382	1.73
Maintenance of Way (Section and B&B Workers), Signal men	168	57	16	2	26	6	3	9	62	24	21	80	58	29	10,598	1.5
Shops and Stores Commissary Dept.	145	34	13	0	16	2	2	6	44	20	22	47	63	35	12,286	1.18
Agents, Teleg. Oper., Dispatchers, Station Baggageman, Freight Handlers, Police, Towerman	61	15	5	2	10	2	1	2	14	4	9	9	31	21	3,190	1.9
Dining Car, Cooks Barber, Porters	45	7	5	0	12	4	0	4	13	6	4	20	20	5	1,119	4.0
Floating (boat) Equipment	22	6	3	3	3	0	1	2	8	1	5	7	11	5	562	3.9
Crossing and Bridge Flagmen, Watchmen	21	4	0	1	5	0	0	1	2	3	4	1	11	9	481	4.3
Yardmasters, Yardmen, Hostlers, Ice Foremen, Icemen	42	11	6	1	6	2	0	6	11	2	5	11	20	11	358	11.7
Train and Enginemen	68	16	7	1	12	2	0	2	18	3	9	27	29	12	8,087	0.84
Hospital Employees	1	1	1	0	1	0	0	0	1	0	1		1		17	6.0
Nurses	6	1	1	0	0	0	0	0	0	0	3				86	7.0
Janitors and Car Cleaners	25	9	4	1	2	0	0	1	9	1	5	9	7	9	687	3.6
Total	746	191	71	14	114	22	8	37	225	70	105	293	292	155	45,268	

There were 27,730 hospital admissions in 6½ years.
There were 868 tuberculosis entries, including reëntries for recheck.
General incidence in hospital admissions 2.7.

There were 746 original entries in which diagnosis of tuberculosis was made
Average number of employees during period 45,268
Incidence of tuberculosis discovered among employees 1.62.

as uncovering certain facts of great medical interest. For example, the history will frequently show that a man has worked 10 years in quartz mines before coming into our employ, and then will follow 10 to 20 years of employment for the Southern Pacific Railroad without any breaking down of the lung from an original silicosis. It has given us something to ponder about in regard to diagnosis. In one case a miner of hard coal for 17 years, working underground all this time, was employed, without examination, to blast rock. Within 2 years of employment he entered the hospital with a far advanced pneumoconiosis and extreme fibrosis, with a cavity in one lung and a rapid heart, but without fever. No tubercle bacilli were found in his sputum. As cavity formation has been reported in uncomplicated pneumoconiosis, it was impossible to send a case of this kind to a tuberculosis sanatorium since it would probably lead to a definite liability on our part should he develop later tuberculosis, which is not impossible. Reference is made to this case because of the serious liability which might result if a careful history and thorough examination did not make the condition entirely clear.

We have never been unfortunate enough to have to submit any lung tuberculosis case to the Industrial Accident Commission, although one stenographer who was in the habit of closing a drawer with her knee developed a bone tuberculosis at the point of contact. Her history showed that she had had lung tuberculosis which had been thoroughly arrested before entering our service, and that it did not become active at the time the bone condition developed.

There are on record in California a number of very ridiculous instances in which referees of the Industrial Accident Commission awarded compensation for the acquiring of tuberculosis. One of the worst examples is the case of a county hospital ambulance driver who had to wash his ambulance and occasionally conveyed a tuberculosis case in it. Just how he acquired the disease from his occupation as driver and washer is a little difficult to figure out.

I have divided the admissions to the Southern Pacific Hospital into 13 groups in an attempt to have each group represent about the same type of work. Table I gives a summary of the findings.

In the first place the incidence of the disease between ages 20 and 35, and 35 and 50, is almost the same—293 and 292, while in people of 50 years of age and over, it was found in 155. It is impossible to give exact numbers in each group, but the ratio is about 4:4:2. With increasing age men come in for more and more serious things, while in the younger group such conditions as tonsillitis, or removal of tonsils, sinusitis, and trivial accidents bring the number up to a point that makes it surprising that the incidence of tuberculosis is so low. It is certainly not that the condition is overlooked at the time they are employed, because the younger they are the more attention is paid to the history and physical condition when they are examined. It is unfortunate that emergencies have to be met occasionally by taking on 300 or 400 laborers, in which event no examination can be made. A washout, perhaps, demands such immediate attention that extra men are recruited at very short notice. With the large number of foreigners that sometimes have to be employed, it has been very obvious that these people are in some cases hoping to take advantage of the industrial benefits, and we have found such a group present a large number of complaints in a comparatively short time. It would be in the interest of industry if immigrants could be examined adequately when they enter this country. In all probability working conditions are better here than they are in the places from which they come, and

There were 868 tuberculosis entries, including reentries for recheck.
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Incidence of tuberculosis discovered among employees 1.62.

when an immigrant reaches adult life with negative X-ray findings, which could be obtained at port of entry for less than $1 each, it is presumable that he is not apt to develop tuberculosis in later life under the improved living conditions. The vast majority of our foreign employees with tuberculosis can be shown presumably to have had the disease, or the initial infection before they entered this country. The significance of our proximity to Mexico is interesting in connection with this latter problem. The number of Mexicans in San Francisco, for example, is only a few thousand, whereas in Los Angeles the number has reached as high as 300,000. The State of New Mexico had till recently more Mexicans and their descendants than all other nationalities combined. Our Negro population in San Francisco, although growing rapidly, is under 6,000, while Los Angeles has more than 10 times this number.

The incidence of tuberculosis among 27,730 admissions, not counting the reentrances, amounts to 746 or 2.7 per cent. When the total number employed is considered and not the hospital admissions, the incidence is 1.62 per cent. There were 142 readmissions of these cases, chiefly patients who had returned from the sanatorium at Tucson to this neighborhood and were reëxamined as to fitness to return to work. It has been our policy, if they are not in a very thoroughly arrested state within the year that we give them care, to try to provide for them through the county tuberculosis hospitals in their home districts if they have no homes of their own.

It is a very significant fact that the incidence of tuberculosis is highest among the groups that are not examined before they are employed. We have been particularly struck with the fact that out of a group of 14 interns taken annually there is apt to be 1 who is found to be actively tuberculous and 2 or 3 whose childhood infection is suspiciously severe and threatening, and who during the year's work with us develop conditions that make it necessary to take chest plates and temperature records and deal with potentially incipient conditions. One has to ask himself if the number of interns who apply from eastern colleges may not wish to come to California on account of some known or suspicious condition, and whether it would not be wise to ask them to send X-rays of their chests rather than their photographs and certificates of good moral character. Nurses who are not examined have a fairly high incidence of the disease although they are not exposed to tuberculosis, especially in the hospital since we send our lung cases to Arizona as fast as they are diagnosed.

A rather surprising fact is the protection that good pay and intelligence are to men who are undoubtedly exposed to considerable dust when riding in either closed cars or on engines, or getting off at stations in all sorts of weather. A group of train and enginemen, of whom there were 8,087, showed an incidence of 0.84 per cent. Only 3 of the 68 cases had far enough advanced tuberculosis to die from it eventually, although nearly 25 per cent had cavities when first examined. They represent the highest paid group of all employees except executives. In contrast to these men, the executives, officers, and assistants show an incidence of 3.14 per cent, while their clerks and stenographers and other office employees exposed possibly to less favorable office conditions, show an incidence of 1.76 per cent in a group of 7,382. Another entire group in the shops, stores, and commissary department, numbering 12,286, show an incidence of 1.18 per cent, while 10,598 outdoor workers in maintenance of way and bridge building show 1.5 per cent. In cooks, waiters, and porters, of whom there were over 1,000, all Negroes, the

incidence was 4 per cent. This is probably due to the fact that they are examined annually and an X-ray plate made of the chest of every one. The fact has been brought to light with sufficient emphasis to make it important that family contact with tuberculosis is responsible for the disease in a very high percentage of these cases. Part of the history taken in such cases should be the occurrence of any questionable condition in the family and the making of such a condition reportable to the company. It would be difficult to enforce this, but the wives of a number of our colored employees have been found, through the local social service departments, to have the disease. This fact has been uncovered in seeking to provide for our employees' families through social agencies while they are being cared for at the tuberculosis sanatorium, or when the home is investigated because of our desire to send a patient back for further care in his home after his year under our sanatorium service.

Dufault and Robinson [1] review the subject of tuberculosis among the members of the same family and also the literature, the curious fact being brought out by Turban, quoted by Baldwin in 1902, that 80 per cent of 55 families showed evidence that the disease originated in the corresponding lung of the consort of a patient with lung tuberculosis. In Baldwin's 65 families 166 individuals (70 per cent) had developed tuberculosis in the corresponding lung. In 28 with parental tuberculosis 78 per cent had children with homolateral disease. In 35 families with one or more tuberculous brothers 63 per cent had the disease homolaterally. Fishberg has observed the same condition in two-thirds of the cases in which several members of the family were affected. The danger of housing open cases in families where there are children has been appreciated for decades. In California, state aid for the minor children is refused if the breadwinner with open tuberculosis remains at home.

Just how far it is the duty of industry to insist upon the examination of doubtful family cases is a question, but in the Southern Pacific Hospital we have extended the services of our own laboratory to test the blood for lues in the members of the family of every instance where our employee is known to have the disease. It is a piece of public health work that promises much for a proper system of health insurance made compulsory for low wage earners. We try to have local doctors or clinics examine the families, and we know that if state aid is applied for, the local welfare director will see to the examination of contacts.

Conjugal tuberculosis is a far more important matter than is appreciated and although the extent of it is still under discussion it is growingly shown that it must be considered seriously.

S. Tillisch from the Grepen [2] Sanatorium, Norway, shows that in 1,152 married patients 85, or 7.4 per cent, the consort had pulmonary tuberculosis. Among 841 patients with active tuberculosis her husband found 18.5 per cent had clinically demonstrable evidence of childhood tuberculosis. Harbitz concurs in this frequency. In 72 of her 85 cases there was no clinically demonstrable evidence of childhood infection, making the percentage 6.2, in which the consort of a tuberculous individual acquired the disease from this source.

S. Rowland,[3] Tuberculosis Officer for Northampton, England, quotes E. Ward as showing of 156 cases (120 wives, and 36 husbands) 91, or 58 per cent, showed the consort to have tuberculosis, but considers the death rate of consorts more reliable. His figures show 1,242 certified tuberculous causes of death 1911-1920, of whom 525 were married, with only 15 instances where both partners were certified as having died of tuberculosis and one of these was

doubtful. Two and seven-tenths per cent represents his figures on accepted cases, while the general death rate from tuberculosis was 1.1 per cent in England and Wales.

The obvious criticism of these figures is that they should have included the deaths from tuberculosis in the 5 to 10 years preceding and subsequent to his elected 10 years of any conjugal connections of people dying of tuberculosis in that period, or it should have included the conjugal deaths in a longer period, so that the overlaps in the period before or after the 10 years selected, would represent a smaller percentage of the total possibility. Rowland's method does not admit of a long enough lapse in time between the deaths of husband and wife. With better methods of diagnosis the clinical determination of tuberculosis should be sufficiently dependable to cover the facts of the case.

M. Fishberg [4, 5] states that he has never observed a case of lung tuberculosis transferred from one consort to another. He made an extensive study later, and reports examining 9 women consumptives and 161 men. In 3 per cent only were husband and wife tuberculous.

Weber [6] reported 147 cases of tuberculosis acquired by consorts of 68 consumptives. This was before the discovery of the tubercle bacillus, and the method of contagion was not known. Nine tuberculous husbands lost 18 wives with the disease, 1 lost 4, 1 lost 3, 4 lost 2 and 3 lost 1 each. In the *British Medical Journal* (about 1888) is a report of 18 consumptive widowers of whom 11 per cent lost wives with consumption, and of 29 consumptive widows of whom 17 per cent lost husbands by the disease.

Brehmer, in 159 couples one of whom had tuberculosis, found 12 per cent of the consorts infected. Jacob and Pannwitz, in tuberculosis sanatoria in Germany, found 8.57 per cent of cases where tuberculosis existed in both of married couples. Weinberg [7] reports 8.3 per cent of husbands of tuberculous wives died from tuberculosis, whereas only 4.5 per cent of wives of tuberculous husbands died from it.

Minnig, before his study at the Denver Municipal Clinic, was prejudiced in favor of Fishberg's idea of the nonexistence of conjugal tuberculosis but after a study of 1,000 cases he made the statement that an average of 8.7 per cent showed the disease in both partners, and added: "If we take the normal incidence to be 2.7 per cent among all classes we do not find anywhere in the literature so low a percentage in the consort of the infected husband or wife."

Crouch, of the Modern Woodman's Sanatorium at Colorado Springs, showed even more strikingly that the wives of tuberculous husbands acquired or died from the disease to the number of 6.4 per cent, while 58 per cent of widowers who had lost wives of the disease, acquired it.

An extraordinary variation continued throughout a long list of observations here and abroad. This brief review of the situation is given for the sake of bringing out the point that the great variation in opinion among investigators does require a certain standardization, if one would make comparisons, but the fact cannot be evaded that, while there exists a protective relative immunity in cases where mild exposure occurred in youth, the frequency of this immunity being overcome in the case of adult exposure must be recognized.

The frequency of tuberculosis in nurses has been called to attention many times. Shipman, University of California, has dwelt on it a number of times. Geer in Minnesota has written twice on the subject recently, and in his article in the *Archives of Internal Medicine*,[8] January, 1932, shows that 5.5 per cent of 110 nurses who entered training were tuberculous within 2 years. He contrasts this with Ship-

man's 2.6 per cent in the University of California training school over a period of 6 years. Much, in the Eppendorf Hospital, found his percentage reaching from 1 per cent to 4.6 per cent after the war. Ross, in 800 cases in Manitoba, found 6 per cent had developed tuberculosis in a 4 year period. The average incidence in women of the same age is estimated at 1.5 per cent. Geer has also reported twice on the incidence of tuberculosis in the Aucker Hospital in St. Paul. His latest figures show an incidence of 4.5 per cent of tuberculous disease among nurses in the training school. In September 1928, he undertook to test all nursing school applicants with tuberculin and those that were negative were retested every 6 months—30 per cent were reactors on entering the training school, and nearly 100 per cent before the training was complete. In 5 other St. Paul hospitals the average percentage of reactors was 42 in the 3rd year of training, and no cases of tuberculous disease in the 2nd year period prior to this were discovered. Geer makes the important suggestions that all nurses employed in the hospitals, and all student nurses be given a tuberculin test and have a chest plate made. He recommends better supervision of the hygiene of all tuberculous patients that are admitted.

The hospital should be a school and far more attention should be paid to teaching patients, through both nurses and doctors, as to how to handle their infirmities. A great deal of attention is given to those phases of our responsibility in the Southern Pacific Hospital. Cases of a single classification are kept together so that patients may learn also from each other. As it is frequently necessary to keep lung cases for some weeks before they are sent to Arizona, it has become a custom to use this period for instruction, not only of the patients but also of the nurses who have the care of them.

The high incidence of the disease in crossing flag men and bridge watchmen of 5.1 per cent is due to the fact that these men are frequently employed when long past 45 years of age, and without examination. It represents also one of the mistakes in excluding any class from a thorough physical examination on employment.

The 42 cases diagnosed as having tuberculosis of the lungs in the General Hospital from among yard foremen and yardmen, hostlers, ice foremen, and icemen, represented 11 per cent of the total employed in those fields, the highest incidence of tuberculosis by far, and demanding an explanation. Accordingly those 42 histories were reviewed in detail, with the following facts brought to light. Most of the cases were from the Southwest. Only 4 were icemen and 2 of these were foremen with 10 and 25 years service. Neither was admitted for lung condition. One had an arrested or apparently cured condition, and the one employed 25 years had a definitely active process. The 2 icemen had been employed respectively 1 and 5 months. They both had had pleurisy before employment, and the one employed 5 months had a healed lesion of one apex. The other came in to have an old hernia operated on. It could not be determined that the occupation had anything to do in either of these cases with the pulmonary condition.

In taking over another railroad in the Southwest it was found that of approximately 40 to 50 clerks sent to San Francisco 20 per cent had had tuberculosis and were sent back to the Southwest to the climate and surroundings they had been used to. This is cited as further evidence of the frequency of arrested pulmonary tuberculosis in that region.

Among the 38 men who worked on or about the motor equipment at station yards, 9 were apparently healed old lesions, 18 were in an active stage and

recent, and 11 were chronic cases. Of the 18 acute cases, one was admitted with tuberculosis of lungs, kidney and bladder, 5 had productive cough, 2 were supposed to have influenza, 3 had had accidents, 1 a hernia, 5 complained of such things as neuralgia, sore throat, and run down state, and 1 was short of breath. It must be remembered that if there is anything not obvious about an employee's condition he is sent into the General Hospital. X-rays and sputum examinations in small towns are sometimes difficult to get. The Hospital rule to examine every man from head to foot, no matter what brings him into the Hospital, uncovers fully half of the tuberculosis cases, and it is quite noticeable that among employees in Southern California, Arizona, New Mexico, and Texas, we have many cases of healed tuberculosis besides the incident of silicosis without tuberculosis.

In connection with silicosis it is important to call attention to dust as a hazard in railroad work. Russell [9] reports the investigation of:

The cement industry, representing calcium dust.
Silver polishing, representing metal dust.
The granite industry, representing silica dust.
The coal industry, representing carbon dust.
The cotton industry, representing vegetable dust.
Street sweeping, representing municipal dust.

The conclusion is drawn that silica alone is a matter of importance. In various industries where grinding is done this matter is borne out by extensive studies, but apparently it is the silica and not the metal dust that makes the trouble. A case is shown however, of a World War veteran with a process that looked so like miliary tuberculosis that it had to be studied with great care. The boy had been employed sweeping out plaster molding works, and it was only after we sent to Portland, Ore., to have his brother's chest X-rayed and found that he had precisely the same picture though to a somewhat less extent, as he had not been so much exposed to the dust of the plaster works, that a presumptive diagnosis was possible.

SUMMARY AND CONCLUSIONS

1. The important point in this study is that no matter what people enter a hospital for, the chance for a complete examination is too important a matter to be overlooked, and in advising people about themselves all the facts that have entered into their health problems should be known.

2. Arrested cases of tuberculosis in industry present an economic problem that is very important and only the most intelligent of the arrested cases can be trusted to protect themselves by what they have learned while getting well.

3. The racial differences are shown in the incidence of the disease among Negroes.

4. The problem of tuberculosis in the Pacific Southwest was illustrated by the fact that when the Southern Pacific Railroad bought a rival road running through its territory 11 of the officials who had been transferred to San Francisco had to be provided for in their former environment because of conditions of their lungs which had brought them to the Southwest.

5. Finally, annual examinations in industry are of the utmost importance from an economic point of view for industry and employees.

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An Automatic Liquid Dispenser

HENRY BUKOSKI
Michigan Department of Health, Lansing, Mich.

THE fact that accurate dispensing of large volumes of media in small amounts is a tedious and time consuming operation resulted in the designing of the dispensing apparatus shown in the drawing.

The dispenser is made from glass tubing and the siphoning action is self-explanatory. The volume of liquid that empties at one time depends on the height C, the width D, the diameter of the S-tube, and also on the frequency of emptying. The frequency of emptying is controlled by the constricted tube B which must fit loosely into the S-tube. A pipette tip serves well for this purpose. The frequency of emptying may be further controlled by a Hoffman clamp. The dispensing is intermittent; and the operator is able to manipulate a rack of tubes, moving the rack over to locate an empty tube under the dispensing arm while the S-tube is filling. Pinch cook A is used when it is desired to stop the dispensing, otherwise flow through B is continuous.

The apparatus can be used for dispensing serum or melted agar media as well as broth. We have also used it successfully in dispensing Loeffler's medium, and for filling silver nitrate solution into wax ampules for prevention of ophthalmia neonatorum.

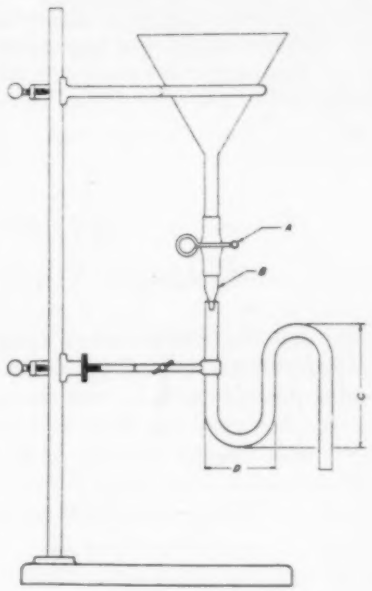

FIGURE I—Dispenser Apparatus

With a small amount of practice one will be able to more than double one's output using the old pinch cock method.

TABLE I

DIMENSIONS OF SOME DISPENSERS

Inside Diameter of Tube	*C*	*D*	*Volume of Each Discharge*
5.5 mm.	6.0 cm.	9.0 cm.	4.16 c.c.
5.5 mm.	8.6 cm.	9.3 cm.	5.8 c.c.
7.0 mm.	8.9 cm.	8.1 cm.	7.5 c.c.
5.5 mm.	16.6 cm.	11.2 cm.	10.2 c.c.
10.0 mm.	13.0 cm.	13.0 cm.	24.5 c.c.
3.5 mm.	1.6 cm.	1.4 cm.	0.4 c.c.

One hundred Loeffler's tubes were filled by each of the two methods in a test run. The time required when using the automatic dispenser was 3 minutes 16 seconds. When using the pinch cock method, 8 minutes 31 seconds were required. Another advantage in the use of the dispenser is the large saving in media, due to the fact that only the right amount of medium, and no more is dispensed into each tube or flask.

Table II shows the weights in grams of 16 consecutive discharges of water from one dispensing apparatus at the rate of one discharge per 2.6 seconds.

TABLE II

Weight in Grams	*Weight in Grams*
1.3515	1.3509
1.3521	1.3558
1.3520	1.3518
1.3337	1.3591
1.3643	1.3471
1.3503	1.3497
1.3298	1.3516
1.3523	1.3417

Lowest	*Highest*	*Maximum Difference*	*Average*
1.3298	1.3643	0.0345	1.3496

A modification of this apparatus has been designed for dispensing sterile solutions and will be reported on at a later date.

Chicago Study of Premature Births

THE Health Department of Chicago, Ill., made a study of the death certificates of infants born and dying in hospitals having more than 200 births a year, which shows that the death rate of premature infants under 15 days of age was as low as 5 per 1,000 births in some institutions and as high as 50 per cent in others.

The Department of Health has established a 24 hour incubator ambulance service for hospitals without incubator facilities and for private physicians delivering mothers in the home.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

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I GIVE AND BEQUEATH

THROUGHOUT the 64 years of the life of the American Public Health Association a Big Problem has existed. It exists today. It is set in capital letters and even in bold face in everyone's thinking. The Big Problem has faced every officer who ever served in any capacity in the Association. It has absorbed years of time of the governing bodies and eons of time of staff members. No one can say what discussions revolved around it in the earliest days of the Association's being, but it was probably then, as it is now, the bête noir of every Executive Board meeting.

The Big Problem is finance.

When the Association was organized in 1872, the membership dues were set at $5.00 a year. They have never been increased. The grade of Fellowship was created in 1922 with annual dues of $10.00, but the classification may be ignored in this discussion because it involves less than 20 per cent of the membership. Though dues remain at $5.00 for the majority, services to members have greatly increased. The membership is not unaware of the fact that the total income from all classes of membership dues is only 25 per cent of the Association's budget. It is common knowledge, too, that the remaining 75 per cent is secured from grants and from the organization's business services and not through or from the membership.

The Big Problem reappears constantly because of the uncertainty attending gifts and because of fluctuations in general business which the Association's commercial activities faithfully and dishearteningly reflect.

Such a hand-to-mouth existence invites emergencies. After each has been weathered (do not ask us how) the necessity for a stable financial structure becomes more apparent.

An endowment fund that some day will yield sufficient income to cover the basic and essential expenses is the heritage those currently serving on the Executive

Board would like to leave their successors. By basic and essential expenses is meant the costs of maintaining an office, of supplying a magazine, certain other publications, and an Annual Meeting to members. It is generally recognized that an endowment fund for the A.P.H.A. probably never will be achieved through one or several large contributions. Instead, a slow building up process is indicated during which hundreds and even thousands of small gifts will be accumulated over a period of years.

We hasten to say at this point that our present purpose is not to ask readers to add from their small earnings to an endowment fund. If the urge to do so becomes intolerable, however, permit us to intimate that checks made payable to the American Public Health Association will be deposited in the proper account. Our chief intent is to give some background of the Association's financial difficulties, comment on the Big Problem, and point out its ultimate solution.

In preparation for the last mentioned, it should be noted that no one, in all the years of the Association's useful life, has ever made a bequest in its favor. This seems odd in retrospect because in past years there must have been fortunate citizens connected with and interested in the society who were in a position to will it something. Indeed, we have evidence that there were, in the reality of substantial cash contributions made by several individuals in days gone by. We have no way of knowing whether the Association figures in the wills of those of the donors who are still living. We do know that not one who has died remembered the society in his will.

It is not too much to hope that the A.P.H.A. may benefit by legacies in the future. After all, we are a body of professional people, the vast majority of us with jobs which have never paid us princely sums but which, on the other hand, have been sure, and have paid us greater or lesser salaries over a period of many years. Most of us own our homes, educate our children, eat and sleep somewhere ourselves with a fair degree of regularity and have a liberty bond or two tucked away against that inevitable day of retirement. There are without doubt a few among us blessed with a sense of acquisitiveness, or a flair for the sound investment, or fortunate enough to have been born with a silver spoon in our mouths, or to have had advantage of any of the thousand odd tricks of fate that result in making a few better off than others. These fortunate ones could even now provide a small legacy for the Association. That group also undoubtedly has well-to-do friends. Sometimes it is easier to persuade someone else to do something than to do it one's self. They could recommend the mention of the A.P.H.A. in a number of wills. Further, the poorest of us, our positions being what they are, know officially and very often socially people with much larger incomes than our own. Here again the worthy cause the A.P.H.A. represents can be dwelt upon as something to be considered in the ultimate disposal of worldly goods.

If we cannot give and bequeath, therefore, it may be entirely possible for ours to be the influence that induces someone else to do it, and the glory and credit in either situation is the same.

The solution to the Big Problem is not an out-and-out donation running into many figures which will provide insurance to time eternal against worry and the constant search for pay-dirt which goes on continuously in the Executive Board and in the headquarters office, but an endowment fund arrived at after a number of years through a slow process of education and persuasion. The secret of the strength of the Association lies in its struggle to overcome financial obstacles. Too much money too easily arrived at is the cause of "Nervous Prosperity," as one

old-time physician diagnosed a case, quite as surely in organizations as in individuals. No one wants to see the Association sitting in the lap of luxury with the enervating, devitalizing hazards that such a situation brings. A margin of financial safety broader than the Association enjoys now, however, is a consummation devoutly to be desired. In anticipation of that, let us scan our friends' and associates' resources, and our own as well, with a view to disposal of a small portion of them eventually to that end.

A hint to those who have it in their power to help—It is much easier to get money for a project than a program. The *American Journal of Public Health* is a project well worth supporting. It lacks the dramatic appeal that a wheel-chair for a crippled child, for example, possesses. It must be sold to the intelligence and not to the emotions, and that is the hardest kind of selling. However, someone might consider its 25th birthday, occurring this year, worth commemorating through a contribution to be spent on paper and printer's ink.

"I give and bequeath" are words that extend an individual's influence and personality beyond the moment when he shuffles off this mortal coil. They are capable of assuring a measure of immortality to the writer if they are wisely directed. Let us hope they may be written many times in favor of the A.P.H.A.

INTERNATIONAL BIOLOGICAL STANDARDS

IN 1926 the Health Committee of the League of Nations appointed a permanent commission for the study of international standards for biological preparations under the chairmanship of Dr. Th. Madsen, Director of the State Serum Institute of Denmark, Copenhagen. The work has been apportioned to well known institutions in various countries—Germany, Denmark, the United States, France, and Great Britain having taken part. In most cases the laboratories coöperating were national institutions. Conferences have been held, discussions carried on, and results compared. There are now *22* international standards, including 9 for antisera, old tuberculin, insulin, pituitary extract (posterior lobe), estrous hormones, 3 of the arsphenamine group, 4 vitamins, ouabain and digitalis.[1]

The most recent information which has reached us[2] tells of the adoption of international standards for gas gangrene antitoxin (vibrion septique), gas gangrene antitoxin (edematiens), antipneumococcus serum, type I, antipneumococcus serum, type II, and staphylococcus antitoxin. The Commission has asked the State Serum Institute of Denmark to draw up a scheme for the determination of an international standard for antitetanus serum, so that we may confidently look for a standard for this product in the comparatively near future. The status of antidysentery serum, Shiga, is also somewhat unsettled and the Commission has asked that the documentary material on hand should be reëxamined. The question of antityphoid serum has been placed on the agenda of the next session of the Commission.

One of the controversial matters is streptococcus antitoxin. The American standard adopted by the federal government has been selected as a basis for study and the Hygienic Laboratory (National Institute of Health) has agreed to place at the disposal of the Health Organization of the League of Nations a sufficient quantity of the standard serum for study. Up to the time of this report no effective action has been taken toward the adoption of an international standard for this serum, action having been hindered by the patents granted in the United States and several other countries covering the production and testing of the

product. Even in countries such as the United States, where a legal standard serum and unit in terms thereof have been defined officially, the manufacturers are obliged to submit samples of each batch of serum to the patentees for an independent and possibly discordant indication of its value, in units defined by them. Under the circumstances the Commission decided it was useless to proceed with work looking to an agreement on a standard and unit for international work which might conflict with the authority exercised by the patentees. This decision and the reasons for it were reported to the Health Committee of the League of Nations.

Up to 1914 the most important standard was that for diphtheria antitoxin which was established by Ehrlich and kept at Frankfurt, Germany. After testing in several countries, the original unit was accepted for the international standard.

The Health Organization of the League of Nations has placed the responsibility for the care, storage, and distribution of the standards adopted upon the State Serum Institute of Denmark and the National Institute of Medical Research at Hampstead, England. The former is responsible for all the serum standards and that for old tuberculin, while the latter has charge of those for hormones, the vitamins, digitalis and ouabain. In general these two Institutes distribute the standards to national central laboratories selected by the League and from them are distributed to smaller laboratories and research workers. Where there is no national central institute the standards are supplied directly from Copenhagen or Hampstead.

The work has progressed most satisfactorily. It is under the most competent direction that the world affords so that one may have great confidence in the products issued by any laboratory under national control in any of the countries adhering to the League. For the United States the standards are distributed by the National Institute of Health of the Public Health Service, Washington, D. C.

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SIR GEORGE NEWMAN

NEWS comes to us from England [1] that Sir George Newman retired March 31, 1935, from the offices of Chief Medical Officer of both the Ministry of Health and of the Board of Education. In England, according to the testimony of *Public Health*, this will bring to an end an era in which the developments which have occurred in the field of public health are described as momentous. The influence of Sir George Newman on these developments has been enormous. It is only by and through him that the health machine, including as it does the school health service, the maternity and child welfare scheme, and the extensive general public health service, has moved so efficiently and smoothly. Indeed there is just reason to believe that but for him this machine would never have existed and would never have been perfected. His knowledge and ability as well as his organizing capacity were required and brought into action.

Since 1907 Sir George had served as Chief Medical Officer of the Board of Education. It will be remembered that the need shown by the great war led to the creation of a Ministry of Health and he was appointed Chief Medical Officer of that service. He made the position of Chief Medical Officer and filled it adequately in every way.

In America we know him not only as a master executive officer, but as the writer of essays which have had a far reaching influence. His annual report was a textbook and guide to us in this country, not only recounting the aims and accomplishments of the Ministry of Health of England during the year, but discussing in a masterly way many matters of general interest. England will miss him more keenly than we in this country can, but none the less, his retirement is a matter of great concern to us.

His successor is Dr. Arthur Salusbury MacNalty. The Deputy to the Chief Medical Officer is Dr. Thomas Carnwath. Both of these officers possess high capabilities, and with our congratulations we wish for them successful tenure of office.

REFERENCE

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MORE PUBLIC HEALTH AWARDS

IN the May *Journal* the winners for 1934 of the Health Conservation Contests, conducted by the Chamber of Commerce of the United States at Washington and the American Public Health Association, were announced.

Two additional special awards were offered, one for cities and the other for counties, in the form of free public health surveys. Announcement has just been made that for 1934 the award for cities goes to Louisville, Ky., and for counties to Spokane County, Wash. These awards are open to all participants in the Contests except the winning cities and counties. The awards are made on the basis of the claims presented indicating the need of such a survey, the readiness of the community to coöperate in the survey, and the assurance that serious efforts will be made to carry out reasonable suggestions for improvement. The Grading Committee had a difficult task in deciding the winners as 27 communities presented strong claims for this special award.

PUBLIC HEALTH EDUCATION*

Please Check Your Mailing Lists—You who are sending house organs, news releases, radio talks, and other routine material for possible use in this department of the *Journal:* please *check your mailing lists* to see that your material actually is sent.

Mailing lists are perverse, and subject to unexplained and unanticipated changes and errors.

We have had assurances that material was being sent which never arrived, or which came for a time, and then never more.

Unless your mailing list carries the name of Evart G. Routzahn we do not hear from you. Then the address should be: 130 East 22d St., New York, N. Y.

A Coöperative County Program—*Michigan Public Health,* Lansing (March, 1935), tells what a little organization plus some energy accomplished in one county.

As a result of the combined efforts of the Health Education Committee of the Washtenaw County Medical Society, the County Commissioner of Schools, the County Nurse, the Extension Division of the University of Michigan and a member of the Health Committee of the County Federation of Women's Clubs, 38 speakers gave 105 lectures in 93 rural communities to audiences totalling approximately 4,500.

Planning of the program was done by a committee made up of representatives of the interested organizations. The organization of the lecture schedule was carried on through the medium of personal visits to the 130 rural schools in the county. These visits were made by the County School Commissioner, or a member of the Health Education Committee of the County Medical Society, or the Chairman of the Health Committee of the County Federation. The program was explained and offer of the lecture service was made to the local teacher and the members of the school board. If participation in the program was desired by the local school officials, formal request was made by them to the Chairman of the County Medical Society Committee, who, in turn, arranged the assignment of speakers.

A total of 38 lecturers participated in giving the talks. Most of them were physicians, one was a dentist, and the others were specialists in some phase of public health from the staff of the University of Michigan. They lived in Ann Arbor, Ypsilanti, Milan, Clinton and Dexter. In the assignment of speakers, effort was made to have the men talk in their own districts, and if possible on their own specialties.

One hundred and five lectures were given during the program, all of them to adult audiences and most of them in rural schools although some were given in connection with Grange Meetings, Farmers' Clubs, Parent-Teacher Associations and similar groups. In all, 93 schools participated, and the average attendance at the meetings reached the unusually high mark of 50.

A Doctor's "Plain Language"—Reported by Associated Press from Kansas City:

Transcript of proceedings in a damage suit today:

Lawyer—"Doctor, in popular language, please tell the jury the cause of the patient's death."

Doctor—"In plain language, he died of an oedema of the brain that followed a cerebral thrombosis or possibly embolism that followed. In turn, arteriosclerosis combined with the effects of gangrenous cystitis. . . ."

The Forbidden Topic—Dr. John L. Rice, speaking in New York City, said:

Two or three months ago, I was invited to speak before a Kiwanis Club in New York on what the taxpayers in that group get for their

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

money in the way of public health from the New York City Health Department. The talk was also being broadcast to the public.

I began by telling of the activities of the various bureaus. I think at the end of about the first 5 minutes I came to the matter of communicable diseases, which was followed with the venereal disease work. I no sooner referred to "venereal diseases" when I heard a commotion in the corner of the room; the kindly chairman had been whispered to and said, "You can't talk about venereal diseases." I hesitated for a moment and then went on, omitting further reference to venereal disease.

A friend of mine, who is the president of the Connecticut State Medical Society, wrote me a letter the following day, expressing his appreciation of the talk and his regret that I had been cut off from talking about venereal diseases on the radio. It seems to me that the proper use of the radio is one of the steps in the advancement of public health education upon this important group of communicable diseases.

A few nights ago, I was coming in from Queens and I had as driver of the car a man of 30 or 35, a pretty intelligent sort of person. On the way back, he asked, "Is it true that physicians cannot ethically treat cases of venereal diseases? Is there something in the state medical regulations which prohibits the ethical doctor from doing this or giving treatments for venereal diseases?"

Those are two experiences which make me think we still have a long way to go in getting this information over to the public.

Health Education at Saranac—On June 21–22, 1935, preceding the National Tuberculosis Assn. convention, a "post-graduate study on health education" will be held at Saranac Lake, N. Y. Sponsored by Conference of Tuberculosis Secretaries; subject, "Putting our knowledge to work"; sessions on "What are we trying to do?" (program for combating tuberculosis); "What shall be taught?" (content); "How shall we teach?" (method).

"Can You Smell the Elephant?"—This is the title of an 8 page folder issued by Michigan Tuberculosis Association, 535 S. Capitol Ave., Lansing.

Johnnie, who had recently been to a circus, went to visit the school where his sister teaches. That day they were presenting for entertainment, a mock menagerie. As Johnnie walked in the door, he said to his mother, "Ooh, hurry, they've started! I can smell the elephant."

Of course, there really wasn't an elephant, but you couldn't blame Johnnie for thinking so, his sister decided after she walked outside and in again. The air in the schoolroom didn't at all make one think of the outdoors.

So she decided to do something. She appointed a committee of pupils to help.

Every day at 10:00 and 11:30 in the morning, at noon, and at 1:30 and 3:00 in the afternoon, the committee walked outside and back into the room. When they came in, they:

Tried to Smell the Elephant,
Recorded the Temperature,
Looked at the Waterpan

Then follows an account of home-made devices by which that school controlled heat, air, and moisture. Every step is illustrated by line cuts.

Health Education in Tennessee—The recently issued report for 1931–1933 of Tennessee Department of Public Health includes 10 pages on health education, and 4 full-page illustrations.

Public health education activities are necessarily a definite part of every activity of a public health program. Public health education is the foundation of all public health work. It is the fundamental principle guiding the whole program. Through the local full-time units more health education is extended to the people on account of trained public health workers making day-by-day contact with individuals than in any other way. Quite naturally this scheme of educating the people is of prime importance.

The Department has engaged in public health education in all the work, but more directly through the activities (which are presented in some detail).

School Health Program—The report says:

The school is the strategic place in which to establish a health education program. If it is carried on systematically, it reaches the entire population during the impressionable learning period, when habits and attitudes are being formed. The child's health pro-

gram functions 24 hours a day, and unless a positive, constructive program is encouraged, wrong habits, attitudes, and information are sure to be acquired.

Five pages are given to this subject, with particular attention to the Blue Ribbon Program in the schools. Elementary pupils who meet the blue ribbon requirements receive a small bar pin mounted on blue ribbon.

The requirements for the blue ribbon include average scholarship, behavior and health habits; the correction of remediable defects, and immunization against typhoid fever, diphtheria, and smallpox. The teacher determines the pupil's fitness for the ribbon in scholarship, behavior, and health habits.

The practice of sound health habits year after year will help to develop a sane attitude toward health as a normal quality of living rather than a subject to be taught. The habits stressed are those of adequate sleep, fresh air, exercise, cleanliness (internal and external), and the eating of protective and building foods. Nutrition is stressed because it is one of the serious problems of the child in the rural community.

The correction of defects has been made possible by the enthusiastic support of the elementary teachers, school principals, and county superintendents, and the intelligent coöperation of such individuals and groups as the local physicians, dentists, and specialists, the parent-teacher associations, women's clubs, Legion, auxiliaries, community clubs, Legion posts, men's luncheon and civic clubs, church organizations, local press and others. In some communities, clinics for correction of defects are held annually and are carried on by the pooling of all available community resources of supplies and personnel.

In a number of counties the Blue Ribbon Program culminates in a county-wide observance of Blue Ribbon or Child Health Day. The children who have qualified take part in a short parade, pageant, field day, or have some other form of recognition. Sometimes they are guests at a moving picture or meet at some public building for the awarding of school prizes. No prizes are given to individual children and the awards to schools are based on the number of blue ribbons in proportion to average daily attendance. Anybody who has seen these hundreds of children from the elementary schools, massed under their school banners, with bands and flags adding to this picture of life and color, realizes that in this program of child health and protection, peace has its victories no less than war.

The increased interest and coöperation year after year on the part of children, teachers, parents, and communities, is sufficient proof of the soundness and value of this program.

The number of blue ribbons awarded in 1930 was 7,848; in 1931, 17,704; in 1932, 30,771; and in 1933, despite the depression and lack of funds for securing corrections, there were 38,887 boys and girls in Tennessee's Blue Ribbon army.

Here is what the associate in school health education has been doing.

. . . has written numerous articles, made radio talks, spoken at 5 national, 10 state and 23 district meetings of different organizations, met 105 local clubs and 115 parent-teacher associations interested in public health, appeared before 18 county teachers' associations, talked to the pupils of 468 schools, made 73 visits to 50 counties in Tennessee, and served as Secretary of the Tennessee Conference on Child Health and Protection.

Radio Talks—Active coöperation with local stations in giving talks on popular health topics.

News Releases which have included Special articles released for local newspapers, radio talks, school teachers, doctors, health workers, and others.

Health News—including the monthly *Health Briefs* with about 2,000 circulation, and a bi-weekly *News-Letter*, sent to all full-time health workers in the state.

News letters, leaflets, and publications from other state health departments have been collected and excerpts have been mailed to full-time local workers for their use in educating the public. Through this medium valuable information has been passed on to the local full-time workers. The health officers in the State receive weekly from the U. S. Public Health Service reports which contain valuable scientific information for health workers.

Literature—which includes a supply of pamphlets furnished on request to individuals.

Exhibits—Includes display material

. . . used by the Department for community fairs, public lectures, and have been furnished to school authorities and others who are interested in developing exhibits. Much interest has been manifested in the full-time health departments in preparing exhibits for community fairs. Posters and charts demonstrating the value of sanitation, typhoid inoculations, smallpox vaccinations, toxin-antitoxin or toxoid administration, and other activities have been furnished local health and school agencies.

Lectures and Conferences are given by State Department and county unit staff members

. . . to county medical societies, county courts, parent-teacher associations, federated clubs, civic clubs, school boards, city councils and others interested in promoting an educational program throughout the state. Through lectures, exhibits, newspaper articles, the public has been informed of the advantages of full-time county health work, the value of the State Department of Public Health and its divisions, and a general well rounded program in child hygiene, maternity and infancy, sanitation, and other activities.

Films as well as lantern slides are used.

Annual Conferences of full-time local health workers are held.

Professional Technical Education includes an introductory course at Vanderbilt School of Medicine to graduates in medicine who are interested in becoming full-time health workers.

Courses in public health nursing are given at Peabody and Vanderbilt, and a course for sanitary officers at University of Tennessee.

Would our readers like to read similar reviews of state department activities as they can be gleaned from annual reports? One difficulty would be that we do not receive many such reports.

Health Education Specialists in State Departments—The March 1, 1935, issue of *Public Health Reports*, U. S. Public Health Service, Washington, carries the annual "Directory of State and Insular Health Authorities."

Here we find listed the following full-time workers:

Connecticut bureau of public-health instruction: Elizabeth C. Nickerson, C.P.H.

Illinois division of public-health instruction: Baxter K. Richardson, chief.

Indiana bureau of health education: Bynum Legg, director.

Iowa division of child health and health education: Joseph H. Kinnaman, M.D.

Kansas division of public-health education: Earle G. Brown, M.D.

Kentucky bureau of public health education: John W. Kelly, director.

Maryland committee on public health education: Gertrude B. Knipp, secretary.

Michigan bureau of education: Marjorie Delevan, director; Pearl Turner, assistant director; Melita Hutzel, lecturer.

New Jersey bureau of public health education: Edwin C. Lanigan, chief.

New York division of public health education: B. R. Rickards, director.

Ohio bureau of publicity: Paul Mason, chief.

Pennsylvania division of public health education: J. C. Funk, LL.B.

Philippine publicity section: Jose P. Bantug, Ph.G., M.D., chief.

Texas bureau of public health education: L. E. Bracy.

Wisconsin bureau of education: John Culnan, director.

Fifteen departments and 17 individuals. Is it possible that all the individuals were not listed in the reports to the U.S.P.H.S.?

How about a luncheon or dinner gathering at Milwaukee in October?

Humor as a Teaching Device—Health speakers do use "funny stories." Have we studied the elements which make them an effective tool? All too often the stories merely precede a prosaic presentation of solid fact.

Since the health speaker should be a teacher we offer several paragraphs from "The Use of Humor as a Teaching Device," from *High Points* issued for high school teachers by the New York City Board of Education (March, 1935).

That humor may be used as a valuable teaching device is unquestioned. What *is*

questioned is not the utility of humor in the classroom but the type and quantity which should be used. Other teaching devices, from the stereopticon to the thought question in Latin courses, have received careful study and close analysis, but no such studies or analyses have been made of humor as a teaching device. In this field all has been left to the individual teacher, abandoning the pupil to his uninstructed judgment.

There is a crying need for a detailed study of the use of humor in the classroom. This article lays no claim to being that study, but merely attempts to raise the question and to call to the individual teacher's attention the necessity of a critical analysis of his employment of humor, with a view toward its revaluation in the interests of more effective teaching and of a happier student-teacher relationship.

Those who have thought about the matter agree that relevancy ought to be the *sine qua non* of humor as a teaching device. The difference between the teacher who skilfully uses humor as a pedagogical aid and the one who merely blunders haphazardly into a joke is largely a difference in their relative will-powers and abilities to resist temptation. The one uses humor as an adjunct to teaching, the other as a substitute for it.

None of the examples quoted by the author happen to touch health topics.

State Health Releases—Below are listed the titles of recent releases to newspapers from several state health departments. To these should be added the radio talks from Illinois and Connecticut, and the releases based on the weekly bulletin of New York State Department. *Probably other state departments issue similar releases.*

Iowa: A great objective (May Day in Iowa); Lending nature a helping hand (measles); Rural health service; Deaths from measles prevented; The laboratory in disease prevention; The attack on Germs; Explains how to "K.O." epidemics; Mottled enamel; Getting at germs; Defenses against disease; Odds against plural birth; Errors of Omission (birth registration).

Maryland: Goals (reducing infant mortality); A message to you (typhoid inoculation); Milk-improved production and increased consumption; Maryland's 500,000 (population under 16 years).

New Mexico: Accidents; From pig to man (diseases); Bone eaters (primitive racial diet wisdom); Waste (in curing sickness); The precarious age (high school age); The Gosling (goose vs. gander as to coffee and tobacco); We drink (alcohol beverages).

Exhibits in High Schools—A Latin Exhibit at George Washington High School, New York City, was made up of models, drawings, maps, posters, book reports and scrap books.

One exhibit, as described in *High Points* published by New York City Board of Education,

> . . . that was particularly instructive was a table set with delicacies to tempt the jaded appetite of a Roman gourmet—honey, wine, nuts, oysters, olive oil, garlic, beef, pork, cheese, milk, eggs, and grapes. The pie-shaped bread on the table was not a relic of Herculaneum, but had been baked by the student responsible for this table. The Latin names of all the foodstuffs on display were shown on cards. A chart which compared food prices during the Empire with present day prices aroused considerable interest and comment.

This description suggests the participation of pupils in all courses in a health and hygiene display.

In the annual Children's Fair held recently at the American Museum of Natural History there were a few health and nutrition displays among a wide range of almost remarkable exhibits. Probably the teachers lacked graphic ideas on health to share with the children. Many three-dimension displays would be possible. It seems likely that the pupils in the social sciences would be interested in picturesque and original methods for depicting statistics and ideas in the health field.

"The Fire Next Door" (fire prevention play for junior high school students), and a radio interview (by Boy Scouts and local fire chief). *Safeguarding America against Fire,* 85 John St., New York, N. Y. Nov. 2, 1934. *Free.*

"How Good a Driver Are You?" is

a highway safety test form issued by Travelers Insurance Co., Hartford, Conn. Six pictures indicate right and wrong methods of driving and walking, the correct ones to be marked "R," 6 pictures show dangerous practices, the reader to indicate whether the driver or pedestrian is at fault; a series of "yes" or "no" questions; a series of factual statements, each in one correct and two incorrect forms.

"How Safely Do You Drive and Walk?" is a 12 page folder with accompanying answer sheet. In 10 cartoons dangerous practices are illustrated with numbered descriptions for the reader to locate. Questions to be checked "yes" or "no" and "How Not to Stay Alive" and "Things Worth Remembering" complete the folder which is distributed by Travelers Insurance Co., Hartford, Conn.

"How Safe Is Home?" by Howard W. Green. A 48 page study of accidents in Cleveland, including maps, diagrams, and tables. Published by Cleveland Health Council, 1900 Euclid Ave., Cleveland, Ohio. *50 cents.* Some of the data may be quotable, but it is to be hoped that other cities may duplicate the type of study here illustrated.

We Do **Not Cover the Field**—Too much is going on; too many people are doing good work; and too few people take the time to help us here to share their successes or failures with health education workers generally. We can report or discuss only what is sent to us. And frequently essential information is lacking about material sent so that no use can be made of it.

EDUCATION AND REFERENCE

"America's Standing Army for Health Defense" (health, medical and other professional groups); "The Final Drive in the Campaign against Tuberculosis"; "Twins and Their Survival"; "Automobile Fatalities Decline among Children: Increase among Adults." *Statistical Bulletin,* Metropolitan Life Insurance Co., New York, N. Y. March, 1935. *Free.*

"Can't Afford the Eight-Hour Day?" provides data for local efforts to change the time schedule for private-duty nurses. *Am. Journal of Nursing,* 50 W. 50th St., New York, N. Y. May, 1935. *35 cents.*

"Diphtheria Can Be Eliminated: Immunize the Babies," says Dr. W. H. Park under that heading in *Child Health Bulletin,* Am. Child Health Assn., 50 W. 50th St., New York, N. Y. May, 1935. *Child Health Bulletin,* regularly to members; single specimen copy *10 cents.*

"Insects," a list of available publications on insects injurious to man, etc. Supt. of Documents, Washington, D. C. *Free.*

"Report of Progress"—does not look like a report—is a 4 page illustrated folder—several ideas on copy and illustrations. Copy for *5 cents.* Committee on 8 Hours for Nurses, 132 E. 45th St., New York, N. Y. Also, "Dr. X Knows Why 8 hours are better than 12"—envelope enclosure—example of "first person statement or testimonial." Copy for *3 cents.* Both good for local campaigns.

A "special contraception number" of *American Medicine,* 60 E. 42d St., New York, N. Y. (March, 1935), includes editorials, original articles, and book reviews. Both sides are given a hearing. *25 cents.*

Two maps showing the relative rank of the 48 states as to maternal and infant mortality, are offered for exhibit purposes. Address Children's Bureau, Washington, D. C.

"Vegetables in the Diet," by S. L. Smith. The third of a series, this article reviews changed attitudes, and proposes novel promotion methods to utilize the new points of view. Ideas

for exhibits, and for those who seek to enlist the aid of fruit markets, roadside stands, and even the catalogues of seed-men. Paragraphs on needed research will warn writers and speakers against too broad generalizations. *Journal of Home Economics,* 101 E. 20th St., Baltimore, Md., April, 1935. *30 cents.*

WHAT OTHERS HAVE DONE

Some of these "ideas" may be adopted or adapted to your own work.

Again *Journal and Sentinel,* Winston-Salem, N. C., in coöperation with City Health Officer Carlton, issued a "Child Health Section," a 16 page tabloid magazine. There are numerous specially written articles by national health authorities. Sample for 2 cent stamp to City Health Dept.

And, too, the *Spectator,* Hamilton, Ontario, has made an annual event of its special health edition, presented in coöperation with the Medical Officer of Health.

In display type the following statement occupies the last page of May, 1935, issue of *Health Bulletin,* North Carolina State Board of Health:

This space is
sorrowfully dedicated
to the memory
of the
6,072
North Carolina Babies
who died during 1934 before
they were one year old

A Disgraceful Sacrifice of
Infant Life for Which the State
Has No Legitimate Alibi

Once upon a time a speaker's assigned topic was "Mental Hygiene," but he had it changed to "Inside of Your Head." Which do you prefer, and why?

"The Parson and the Doctor Discuss Leprosy" is an example of conversational copy in health education, one of several types used in *Jamaica Public Health,* Bureau of Health Education, Kingston. March, 1935.

The recent publication of a "twenty-fifth anniversary edition" of Clifford Beers's *A Mind That Found Itself* resulted in numerous extended book reviews which did an effective job in mental health education.

Some of the community fund or chest posters or placards on health services are particularly well done and supplement the publicity of individual agencies. A recent one on "Healthy Babies" comes from Denver Community Chest.

What is it? Why is it dangerous? What causes it? These and other questions with their answers are found in a 4 page folder on tuberculosis issued by Bellevue-Yorkville Health Center, 325 E. 38th St., New York, N. Y. Is it not possible that the question and answer form might be used every once in a while to give a fresh approach to old material?

"What is Wrong with This? A case report with at least 3 things wrong in its handling!" *Public Health Nursing,* 50 W. 50th St., New York, N. Y. May, 1935. *35 cents.* An idea for professional journals and staff conferences. In modified form it seems to offer a method of getting attention to home and community health problems. There is in it a possible newspaper competition.

RADIO

To repeat, the editor of this department earnestly requests full information about mention of venereal diseases in broadcasts.

From the Public Health Committee of the Cup and Container Institute, 30 Rockefeller Plaza, New York, comes a request for copies of radio talks on the sanitary dispensing of food and drinks.

Under this general heading we include talks on tavern and soda fountain sanitation, the

common drinking cup, roadside stand sanitation, and any other aspects of the spread of respiratory diseases through the channels of food and drink dispensing.

When the material has been assembled, we shall be very happy to make copies of the whole set available to you if you should care to have them.

Radio addresses by the Governor General, the Prime Minister, and the Leader of the Opposition, inaugurated the King George V Silver Jubilee Cancer Fund in Canada. The addresses are reported in *National Health Review*, Dept. of Pensions and National Health, Ottawa. April, 1935.

As announced in ***Everybody's Health***, St. Paul, Minn.:

With his first broadcast in April this year, Dr. W. A. O'Brien of the University of Minnesota, began his seventh consecutive year delivering weekly health talks over the air under the auspices of the Minnesota State Medical Association. He gave the first in the series April 4, 1928. During these years, the program has become one of the most popular sustaining programs of WCCO, attested to by the ever increasing number of letters received from the radio audience. Requests for a booklet offered at only one broadcast last fall reached over 2,400, believed to be an all time station record for a morning program.

Extracts from the talks by Dr. O'Brien appear in the monthly issues of *Everybody's Health*. The May topics:

Hay fever. Anemia in children. Peptic ulcer. The sixth year molar.

American Medical Assn. (N.B.C., Tuesday, 5 P.M. EDST, or C.B.S., Thursday, 4:30 P.M. CDST):

Sickness insurance. Sudden death. Child health. "Catarrh." May Day or all year 'round? Mothers of America. Training good doctors. Pain. Being your age. Saving our mothers. Children's eyes. Saving our eyesight. Eye accident prevention.

Hartford Tuberculosis and Public Health Society:

Classroom education for healthful living. Work at the Hartford Dispensary. Knowledge alone is not the way to health. Social Service at the Municipal Hospital. A day with the visiting nurse. Guarding the health of 2,300 children. The place of the Y.W.C.A. in the health program of the community. The medical social worker in a hospital. Work of the Juvenile Courts in crime prevention. The health program of the Y.M.C.A. The importance of health in family welfare. The family and home as the unit of community health. Modern weapons in fighting tuberculosis. Mental hygiene.

New York City Dept. of Health, 139 Centre St. ("enclose stamps for postage"):

Quacks and weight reducing. Quacks and tuberculosis. Recreation for every member of the family. Winter babies. Home care of invalids. The shortest day and cod liver oil. Milk gets a boost. Quackery in diabetes. When every cent counts. I am a fanatic about this (covering of coughs and sneezes). "The eyes have it." The autumn of life. Is there a school child in your home? Not everyone wants to reduce. Feeding the family. Food sanitation. The story of diphtheria immunization. The war on mosquitoes. They call them accidents. Common sense and ventilation. Fads and fancies in medicine. What about cancer? Pneumonia. Meet the facts on meat. Hear ye! Hear ye (care of the ears). Measles-time. The six year molars. Speaking of vitamins.

Ohio State Dept. of Health (station WOSU at 10:15 A.M., Thursdays):

Child health as reflected in vital statistics. Child Health Day as a factor in child life. Hospital Day in its relation to child health. Rabies. Occupational diseases.

REPORTING

A miniature line cut, a concise caption, and a date in red. Then another, and another, and more of them irregularly arranged over the two outside cover pages of a report and a flap the size of one page. At the top of the flap which folds back over the front cover page we read: "Meeting Human Needs: 39 Years of Palama Settlement." That reveals the secret. The 3 cover pages tell the story of 39 years; inside is the record of the "39th

Year of Service." The first inside cover page: "Where the Money Came From" and "Where the Money Went," the financial statement. Nearly every page has a hand-lettered script heading printed in red. Again Palama Settlement has done something "different" and decidedly effective. The Settlement is in Honolulu although the report does not say so. Of the $197,829.97 budget $30,000 went to recreation, $53,000 to medical and $46,000 to nursing services, $2,300 to diphtheria campaign, and $34,000 to dental clinic.

"Bright Eyes of 1934" is on the cover page. On the inside cover page: "Twentieth Annual Report of the National Society for the Prevention of Blindness, 50 W. 50th St., New York, N. Y., 1934." The cover carries two bands, across top and bottom, containing baby faces. Dull finish paper and large type make it easy to look at.

Again the Racine, Wis., Health Dept., has issued a mimeographed annual report. On letter size sheets, with printed cover, and *a 2-page index* (includes reference to "publicity"). An effective form of report.

SAFETY

Ninety-nine thousand deaths by accident last year in the United States are reported in "Preliminary 1935 Edition of Accident Facts." This is a slight decrease from the 1930 all-time high, but is 8.7 per cent increase over 1933. In 9 months "had been drinking" drivers in fatal accidents increased 29 per cent and pedestrians 53 per cent. In non-fatal accidents "had been drinkers" increased 50 per cent, pedestrians 64 per cent. The report doubts that all drinkers were reported. The full report costs *10 cents*. National Safety Council, 20 N. Wacker Drive, Chicago, Ill.

Enforcing a safety law by means of motion pictures is reported in *Movie Makers*, 105 W. 40th St., New York, N. Y. (April, 1935: *25 cents*):

> The drunken drivers in Flint, Mich., now appear in 16mm. movies, since the Police Department of that city has scenes made of the offenders as they are brought into the police station. This new and remarkable use of the 16 mm. movie camera was initiated as a result of difficulty in getting convictions on charges of driving while drunk. . . .
>
> To solve the problem, the Flint Police Department enlisted the aid of Theo. Brice, ACL, who, with a concealed motion picture camera, made some experimental scenes which were so successful in preserving the evidence of intoxication that the Police Department has installed a permanent, concealed 16 mm. movie camera. . . . Two No. 4 Photofloods illuminate the hilarious subject and a calendar and a clock are so placed as to be included in the shot, to be used later as evidence. It appears that the drunken offenders take little notice of the bright light which is turned on as they stagger across the room. The next day, the majority of them plead guilty when they are told that movies have been made of them the night before, while the offender who insists on an alibi has slight chance when the record is projected.

CHILDREN AND SCHOOLS

"The First Visit to the Dentist," by E. M. Kohlhepp, *Public Health Nursing*, 50 W. 50th St., New York, N. Y. May, 1935. *35 cents*. When to visit and pointers in handling children. Good stuff for parent associations and other uses.

"Home-School-Community Relationships" is a 6 page mimeographed pamphlet based on experiences of teachers under these headings: "Some teachers visit homes"; "Parents are invited to school"; "Children take ideas home"; "Mothers' clubs and community groups are helpful"; "The public health nurse is invaluable." Other counties may wish to collect similar material. Cattaraugus County School Health Education Project, 302 Laurens St., Olean, N. Y.

"Home-School Relationships," in "A Project in Rural School Health Educa-

tion," by R. E. Grout. *Quarterly*, Milbank Memorial Fund, 40 Wall St., New York, N. Y.

June 19–21, 1935, is the date for the Eighth Health Education Conference, Iowa City, Iowa. The main theme: "Effective relationships in school health activities." If interested write to Anne Whitney, Am. Child Health Assn., 50 W. 50th St., New York, N. Y. Preceding this conference will be the 9th Iowa Conference on Child Development & Parent Education. Address: Iowa State University, Iowa City, Iowa.

"The School Camp," by H. S. Curtis. *Journal* of National Education Assn., 1201 16th St., Washington, D. C. April, 1935. *25 cents*. An important adjunct to the school.

"Self-selection of Food by Children," by C. M. Davis, M.D. *Am. Journal of Nursing*, 50 W. 50th St., New York, N. Y. May, 1935. *35 cents*. How children in the orthopedic ward, Children's Hospital, Chicago, decide what they eat and how much, and how they gain weight, and the hospital saves on food costs.

"The Teaching of Social Hygiene During the Depression," by F. H. Richards. *Journal of Social Hygiene*, 50 W. 50th St., New York, N. Y. March, 1935. *35 cents*. The medical director of William Penn High School for Girls, Philadelphia, mentions "the changes in the attitudes of the pupil during the last 5 years" and some of the incidental problems.

In Hygeia for May, 1935—*Hygeia*, 535 N. Dearborn St., Chicago, Ill., for May, 1935, contains:

May Day versus diphtheria. Diphtheria a dreaded scourge. What are your health frontiers? The care of the eyes in measles. Your child's face and future (cosmetic surgery). The mosquito (the twelfth parasite). Prenatal care. The menace of radio quackery. The nursing care of the sick child. Louis Pasteur. Why the baby has eczema. The live topic of the dead tooth (5th in a series). Infant foods approved. Eye diseases in adults (a series). New books on health. Questions and answers.

In "School and Health" will be found:

Studying the pupil's health. Health teaching in May. Solving health educational problems. Health without wealth (or added school costs). Pushing posture (by making it pleasing). A convincing experiment (with milk). Combining health habits with the new curriculum. New health books for teachers and pupils.

BOOKS AND REPORTS

Principles of Genetics and Eugenics—*By Nathan Fasten, Ph.D. Boston: Ginn,* 1935. 407 pp. Price, $2.80.

The purpose of the author in writing this book is to make the highly specialized subjects of genetics and eugenics more easily understood. Most of it is devoted to genetics; and some of the chapters describe the Inheritance of Acquired Characters, Germ Cells and Heredity, Sex and Its Determination, Monsters and Abnormal Individuals, the Immortal Germ Plasm, Mendelian Principles of Heredity, the Gene Hypothesis, Variation and Species Formation, and the Improvement of Organisms. At the end of the book, a few chapters describe Physical and Physiological Traits, Mental Traits and Social Factors, and Eugenics and Human Betterment. To add to the understanding of the topics, illustrations and figures are freely used; and to the completeness of the book, a comprehensive bibliography, a useful glossary, and a good index, are appended.

Moreover, the book is interesting, well written, and contains a great deal of useful information. It should be found valuable to lay readers who have a little knowledge of biology, to physicians and nurses who should disseminate more freely knowledge for the betterment of the human race, and especially to students to obtain a basic understanding of genetics and eugenics.

FRANCIS LOWELL BURNETT

Mouth Infection—*By Oliver T. Osborne, M.D. New Haven, Conn.: Published by the Author,* 1934. Price, $2.00.

We regret that we cannot recommend this book. The case histories, which are not case histories in any sense of the word, might well have been compiled by a layman. The information under the heading "My Conclusions" was common knowledge when the author began writing in 1917. His observations on dental conditions are quaint, with diagnoses such as "terrible pyorrhea, stinking teeth, rotten foul bridge, nasty infected mouth, plenty of odor," etc. The information that "Pivoted teeth are always a menace" will be received with surprise by dentists, as will also the statement that "most fillings of the canals of teeth will allow, sooner or later, distention of the canal. . . ." We cannot believe that the tooth brush is harmful as the author does: "It has been noted in primitive countries that when the bristle tooth brush was introduced into the schools, the children's teeth decayed faster than they ever did before."

The general object of the book, to show the importance of mouth infections and the close relationship between the professions of dentistry and medicine, is commendable. C. F. ELZEA

Sing Sing Doctor—*By Amos O. Squire, M.D. Garden City, N. Y.: Doubleday, Doran,* 1935. 296 pp. Price, $2.50.

This is a well written and interesting story of the services of the author as consultant, chief physician, and again as consultant at Sing Sing Prison. It opens with an introduction by Lewis E. Lawes, the Warden.

It is evident that Dr. Squire has not been simply a routine doctor but has studied his cases and his duties carefully and has given much thought to what he has seen. As a result of his

experiences he is very much against capital punishment, and has devoted two chapters to a study of the question, giving many cases of failure of justice. The strain upon the prison physician, who for a long time was the only one who had the right to say whether or not a prisoner was insane, was terrific. Even more trying was the necessity of watching executions, giving the signal for the throwing of the switch, and the subsequent postmortems. Finally his daughter persuaded him to resign after he had realized that he had a dangerous "fixation."

The book is intensely interesting, but we can recommend it only to doctors, sociologists, penologists, and to others of mature mind who are interested in and not merely curious about such subjects. We do not believe that it would be wise to recommend it for general reading, and it should be withheld from young and immature people.

The printing and binding are excellent. There are four illustrations showing the prison. MAZŸCK P. RAVENEL

Ten Years of Rural Health Work, Rutherford County, Tenn., 1924–1933—*By W. Frank Walker, Dr.P.H., Director of Health Studies, The Commonwealth Fund. Published and distributed by The Commonwealth Fund, New York,* 1935.

Rutherford County, Tenn., has been notable among rural health units for its broad program and for the persistence of the agencies which have supported the enterprise over more than a decade. This brochure reflects the record over a period during which the technic of rural health administration was being established.

Very few such units can hope to have their record of accomplishment written by so discerning and understanding a friend as Dr. Walker, for he has been familiar with this county's work during its entire history and he has seen its progress in the light of similar work elsewhere. There is a nice balance in this report as between the tangible, objective records and the proper emphasis on those personalities involved in Rutherford. The forewords by Dr. E. L. Bishop and Dr. H. S. Mustard give a hint of two very effective personalities which have been behind this project. Dr. J. B. Black carries on the tradition: "At the heart of every great enterprise is a personality."

Those who are concerned with the promotion of county health service will profit by this lucid account which has been kept simple and direct but which carries the refined experience of much sincere labor. Here is the story of one community where the job has been well done and where permanence seems assured. REGINALD M. ATWATER

Voluntary Sterilization—*By C. P. Blacker. New York: Oxford,* 1934. 145 pp. Price, $1.75.

A well organized book, presenting a rational, convincing and timely plea for the need and method of restricting procreation among the mental defectives. The author deals primarily with the legal, social, and hereditary factors of the problem reserving comparatively little space for the technical description of the surgical procedures. The free use of references and statistics imparts an authoritative quality and greatly augments the value of the proposals and discussions. Liberal and intelligent treatment of the objections to sterilization further enhances the merit of the text.

Present economic stress has markedly accentuated the practical importance of negative eugenics so that the serious consideration of the subject is most opportune. Reasonable controversy may exist relative to the efficacy of sterilization as a means of appreciably reducing the incidence of mental deficiency in the next generation, yet it can hardly be

denied that these unfortunates are entirely unfitted and ill-adapted for parenthood in this highly competitive age. It is precisely this class that is unable to make use of mechanical or medicinal contraceptive devices. Surgical sterilization, without unsexing, is undoubtedly the only applicable and certain method of curtailing their fertility.

The reviewer hopes that this excellent book will be widely read by both the laity and profession.

R. S. HOTCHKISS

Growth and Development of the Young Child—*By Winifred Rand, Mary E. Sweeny, and E. Lee Vincent. (2nd ed.) Philadelphia: Saunders,* 1934. Price, $2.75.

The high character of this useful textbook has been maintained in its second edition. The subject matter has been brought right up to date. A new chapter on biological development is interestingly written and well illustrated. It gives the necessary background to child growth and development. Recent advances in our knowledge of endocrine function and in nutrition add to the value of the volume. The same lucid style and convenient arrangement of chapters with references as appeared in the first edition enhances the value of this new one. The book is recommended especially to nurses, teachers, and others actively engaged in work for the preschool child.

RICHARD A. BOLT

Ideal Health: or The Laws of Life and Health—*By Alexander Bryce, M.D. Baltimore: Wood,* 1935. 330 pp. Price, $2.00.

This small book with many anecdotes, narrates notions and discusses principles on the value of Food, Drink, Work, Rest, Air, Exercise, Cleanliness, and Clothing, to health; it also emphasizes the need of Regularity and Moderation, and describes the Influence of the Mind on the Body, and Eugenics—or the Science of Race Culture. The discourse on each subject is prefaced with a law, as "Eat three meals each day of plain, wholesome, nourishing food, at or about the same time," and is summarized in numbered abstracts; and below some of the abstracts, common quotations, as "All work and no play makes Jack a dull boy," are given. Much of the information in the book has been taken from standard works, and is comprehensive and accurate.

Technical terms have been generally avoided in the text, and thus the book may appeal to lay readers; but its purpose is more to interest teachers of personal hygiene, students of medicine, and practitioners, in order that they may become more enlightened and thus diffuse the knowledge of health.

FRANCIS L. BURNETT

The Art of Public Health Nursing—*By Edith S. Bryan, Ph.D., R.N. Introduction by Elnora E. Thomson, R.N. Philadelphia: Saunders,* 1935. 300 pp. Price, $2.00.

Enough cannot be said in praise of Miss Bryan's contribution to the nursing profession in her new book just off the press. While written primarily for the public health nurse—its interpretation of the cultural, moral, and spiritual concepts of the underlying principles of nursing as an art—one cannot but hope that this book will be within the reach of every woman in the nursing field. The rural public health nurse is especially fortunate in having close at hand knowledge of the many little things that memory often fails to recall when she is occupied with major problems. Its pages supply the mental stimulus to carry on when one is lonely, discouraged, and weighted down by the sight of poverty with all its gloom. Let us own this book, read it often, and be inspired. The printing and binding are excellent.

ELEANOR KEELY

The Romance of Exploration and Emergency First-Aid from Stanley to Byrd. *New York: Burroughs Wellcome & Co., Inc.*, 1935.

Messrs. Burroughs, Wellcome & Company need no introduction to Americans. Indeed we feel proud to know that the present senior member of the firm, Sir Henry Wellcome, is an American by birth and education. The firm has done an enormous amount of high class scientific work in research as well as manufacture.

The book before us is frankly an advertisement from the Chicago International Exposition, 1934. However, it gives a very interesting account of explorers from Stanley to Byrd, richly illustrated and containing reproductions of many autographs.

It is a valuable history and book of reference concerning such men. The fact that so many of these explorers carried the first aid packages put up by the firm sufficiently attests their quality and the confidence reposed in them by governments as well as individuals. Here is an advertisement well worth preserving.

MAZŸCK P. RAVENEL

BOOKS RECEIVED

THE HARVEY LECTURES, 1933–1934. Delivered under the Auspices of The Harvey Society of New York. Baltimore: Williams & Wilkins, 1935. 262 pp. Price, $4.00.

OUTLINE OF TOWN AND CITY PLANNING. By Thomas Adams. New York: Russell Sage Foundation. 1935. 368 pp. Price, $3.00.

TEN YEARS OF RURAL HEALTH WORK. Rutherford County, Tennessee, 1924–1933. By W. Frank Walker. New York: Commonwealth Fund, 1935. 82 pp.

COMMUNITY PROGRAMS FOR SUMMER PLAY SCHOOLS. By LeRoy E. Bowman. New York: Child Study Association of America. 1935. 48 pp. Price, $.35.

THE FRUSTRATION OF SCIENCE. By Sir Daniel Hall *et al.* New York: Norton, 1935. 144 pp. Price, $2.00.

SOME NOTABLE EPIDEMICS. By H. Harold Scott. Baltimore: Wood, 1934. 272 pp. Price, $4.75.

THE DOCTOR'S BILL. By Hugh Cabot. New York: Columbia University Press, 1935. 313 pp. Price, $3.00.

AIDS TO ANALYSIS OF FOOD AND DRUGS. By C. G. Moor and William Partridge. 5th ed. Baltimore: Wood, 1934. 322 pp. Price, $1.50.

EPIDEMICS AND CROWD-DISEASES. An Introduction to the Study of Epidemiology. By Major Greenwood. New York: Macmillan, 1935. 409 pp. Price, $5.50.

ECONOMIC PROBLEMS OF MEDICINE. By A. C. Christie. New York: Macmillan, 1935. 242 pp. Price, $2.00.

HAPPY HEALTH STORIES. By Mildred H. Comfort. Chicago: Beckley-Cardy Co., 1934. 159 pp. Price, $.70.

SOCIAL WORK YEAR BOOK, 1935. By Fred S. Hall, Editor. New York: Russell Sage Foundation, 1935. 698 pp. Price, $4.00.

SEDGWICK'S PRINCIPLES OF SANITARY SCIENCE AND PUBLIC HEALTH. Rewritten and Enlarged. By Samuel C. Prescott and Murray P. Horwood. New York: Macmillan, 1935. 654 pp. Price, $4.25.

A NEW ANGLE ON HEALTH. By D. H. C. Given. London: John Bale, Sons & Danielsson, 1935. 158 pp. Price, $3.25.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

About St. Louis Encephalitis—Reviewing briefly the findings of the outstanding research project conducted upon the St. Louis outbreak of encephalitis (reported in detail in a separate pamphlet), this excellent summary emphasizes the difference between this disease and the endemic form of encephalitis.

ANON. Infectious Encephalitis. Pub. Health Rep. 50, 16:542 (Apr. 19), 1935.

Mortality Rates Up in 1934—Preliminary mortality statistics from 28 states indicate an increase in death rates from 10.5 in 1933 to 10.9 in 1934. This increase, while not large, was widespread, for 22 out of the 28 states showed an increase. Infant mortality was also higher, 58 per 1,000 live births against 56 in 1933. The rates for a number of specific diseases are also reported.

ANON. Mortality in Certain States during 1934, with Comparative Data for Recent Years. Pub. Health Rep. 50, 17:560 (Apr. 26), 1935.

Treatment for Injured Miners—Certain trade and medical unions in Scotland have under consideration a scheme for the formation of an orthopedic association to provide treatment for injured miners. They propose to open a chain of clinics throughout the country, where they will provide massage, sun-ray exposure and other special treatment.

It is estimated that about 7,000 workers are injured annually in Lancashire, many becoming permanently crippled because of inadequate treatment facilities. Should this experiment prove successful a similar one would be introduced for other workers.

ANON. Orthopedic Clinics for Miners in Scotland. Indust. & Labour Inf., 53, 4:110 (Jan. 28), 1935.

Compensable Diseases in New York State—A review of occupational disease claims closed in the State of New York during 1934, with statistics. As compared with 1933 there was an increase of 25 per cent in the number of closed cases. This apparent increase was due to an enlarged schedule of diseases listed in the law as compensable and to an improved method of recording such claims.

ANON. Occupational Poisons and Diseases, New York State, 1934. Indust. Bull., New York State Dept. of Labor 14 (Jan. 1), 1935.

Medical Examination in Japan—The Japanese Industrial Hygiene Association is advocating the extension of legislation which now calls for medical examination twice yearly of all industrial workers living in dormitories connected with factories, to include all workers employed in strenuous work, especially in chemical and heavy industries.

ANON. Industrial Hygiene in Japan. Indust. & Labour Inf. 53, 6:165 (Feb. 11), 1935.

France's Notifiable Diseases—Cases of notifiable diseases in France in 1933 were: lead poisoning, 704; mercury poisoning, 13; poisoning by benzine, 45; X-ray poisoning, 2; total, 764. This total was a decrease of 23 per cent over the previous year. Two

companies were responsible for 65.5 per cent of all cases.

ANON. Occupational Diseases in France. Indust. & Labour Inf. 53, 3:85 (Jan. 21), 1935.

Madrid Society for Industrial Hygiene—On January 18, 1935, the Spanish Minister of Labour inaugurated the Madrid Society for Industrial Hygiene, which body will advise the industrial courts on medical matters, and engage in research in silicosis, the indirect results of cranial traumata, and the problems of hernia and self-injury. In addition the society should help to prevent accidents and diseases, and collaborate in vocational training problems.

ANON. Industrial Hygiene Society in Spain. Indust. & Labour Inf. 53, 5:143 (Feb. 4), 1935.

Anthrax—There were 23 cases of occupational anthrax notified to the French Factory Inspection Service in 1933, two of which were fatal. Industries responsible for these cases were: wool, 12 cases; hides, 10; and horsehair, 1. All of the cases were anthrax of the skin in various parts of the body.

ANON. Occupational Anthrax in France. Indust. & Labour Inf. 53, 5:143 (Feb. 4), 1935.

Lead and Zinc Processes—Czechoslovakia has under consideration a bill for the purpose of excluding women and young persons under 18 from employment in certain processes in the treatment and handling of lead and zinc, and laying down certain conditions to be observed in regard to the employment of adult male workers in such processes.

ANON. Lead Poisoning in Czechoslovakia. Indust. & Labour Inf. 53, 5:142 (Feb. 4), 1935.

Silicosis—The British Home Secretary made an order on January 29, 1935, extending the Various Industries (Silicosis) Scheme, 1931, to cover employment in any operation underground in hematite iron ore mines. The order was issued under the Workmen's Compensation Acts and comes into force on March 1, 1935.

ANON. Compensation for Silicosis in Great Britain beginning March 1, 1935. Indust. & Labour Inf. 53, 7:202 (Feb. 18), 1935.

Infant Growth and Disease—Growth of infants from poor families may be raised to normal levels by adequate medical supervision; most of the delay in growth occurs in the first 12 weeks of life and undergrown children have higher morbidity and mortality rates than normal ones.

BAKWIN, H., and BAKWIN, R. M. The Importance of Medical Supervision during Early Infancy in the Infant Death Rate. New York State J. Med. 35, 7:313 (Apr. 1), 1935.

Morbidity vs. Mortality Rates—Age, case incidence, mortality and fatality curves show, for 18 disease groups in a representative population sample, great variations both in the diseases and the age groups. Contrast rather than similarity prevails between case incidence and mortality.

COLLINS, S. D. Age Incidence of Illness and Death Considered in Broad Disease Groups. Pub. Health Rep. 50, 15:507 (Apr. 12), 1935.

Industrial Accidents in Rumania—Number of accidents during period totalled 751. Men: 701 (93.3 per cent); women: 50 (7.6 per cent). The largest number of accidents among the women between the ages of 19 and 22 (34 per cent of total number of women) is due to the fact that a relatively large number of unmarried women work in industry. Of the 50 accidents to women, 39 were injuries to extremities, indicating inadequate vocational training. Although the law forbids industrial employment of minors, 3 children under 14 years suffered injuries. Inadequately trained 20 year old wood, mine, and railroad workers contributed 3.7 per cent of accidents. Cause of the

accidents could not be laid to the employer. The frequency of accidents decreases after the 40 year age group, although 18 (2.6 per cent) accidents occurred among men over 65 years of age.

COTUTIU, C. Industrial Accidents Among the Members of the Local Sickness Fund, Cluj. Rumania, During the Period 1919–1930. Revista de Igiena Sociala. V, 1 (Jan. 1), 1935.

Mottled Enamel in Texans' Teeth—The Panhandle-West Texas region constitutes the largest mottled-enamel area in the United States. The water supplies of the large cities contain the causative factor in sufficient concentration to constitute an urgent public health problem.

DEAN, H. T., *et al.* Mottled Enamel in Texas. Pub. Health Rep. 50, 13:424 (Mar. 29), 1935.

New Deal for Nurses—A fast moving picture of developments in nursing which have come to some parts of this country because of 3,000 new jobs for nurses in the public health field made available through F.E.R.A. funds.

DEMING, D. New Deals for Nurses. Survey (Midmonthly) 71, 4:107 (Apr.), 1935.

Measuring Dustiness—Report of the finding of a new instrument for measuring the dust content of air more satisfactorily than any of the previously known methods were able to do. The method is based upon the fact that heated bodies repel dust. When dust laden air is drawn slowly through a chamber traversed by an electrically heated wire, dust is repelled and collects upon the microscope cover-slips which form the wall of the chamber.

GREEN, H. L., and WATSON, H. H. Physical Methods for the Estimation of the Dust Hazard in Industry. Medical Research Council, Special Report Series, No. 199, 1934.

Shops Acts in Great Britain—An outline of such legislation in Great Britain with a simple review of its historical development, and a consideration of its future possibilities. Includes a consideration of the Shops Acts—in England, Northern Ireland, and the Irish Free State. Book is reliable and readable.

HALLSWORTH, J. Protective Legislation for Shop and Office Employees. By George G. Harrap and Co., Ltd. London, 1935. 244 pp.

Babies Still Have Sore Eyes—The instillation of one drop of a germicide has been relied upon with a sense of complacent security too long. In Philadelphia far too much blindness due to ophthalmia neonatorum was found in a survey, and undoubtedly the same conditions exist elsewhere.

LEHRFELD, L. Limitations in Use of Silver Nitrate in Prevention of Ophthalmia Neonatorum. J.A.M.A. 104, 17:1468 (Apr. 27), 1935.

Toward the Solution of Social Medical Problems—In Mr. Milbank's answer to the caustic criticisms of organized medicine directed against the Fund's "lay" participation in the study of medical care, he presents an excellent distinction between health education and propaganda which all in the health field might well keep in mind.

MILBANK, A. G. The Relationship of the Milbank Memorial Fund to the Field of Health and the Medical Profession. Milbank Quart. 13, 2:99 (Apr.), 1935.

Diphtheria and Immunity—Occasional cases of diphtheria among Schick negative individuals lead these British authors to the conclusion that, though the principles underlying diphtheria immunization are sound, the antitoxic level needed to insure safety from virulent strains of diphtheria is higher than that indicated by the present Schick level. The need of higher degrees of immunity is suggested.

PARISH, H. J., *et al.* The Schick Test and Active Immunization in Relation to Epidemic Diphtheria. Lancet, 1, 11:600 (Mar. 16), 1935.

New Kind of Nursing Campaign—How the Visiting Nurse Association and the Board of Health combined forces to reduce the deaths due to pneumonia in Detroit.

SARGENT, E. A. Detroit's Pneumonia Nursing Campaign. Pub. Health Nurs. 27, 4:190 (Apr.), 1935.

Desired and Accidental Pregnancies—The past history of the contraceptive practices of a large group of women attending a New York birth control clinic was studied to reveal the results of their efforts to prevent or to induce conceptions. An interesting finding is that the ability to conceive does not decline with age or increasing order of pregnancy in the pre-menopause period.

STIX, R. K., and NOTESTEIN, F. W. Effectiveness of Birth Control. Milbank Quart. 13, 2:162 (Apr.), 1935.

Court Rulings on Pasteurization—Decisions are quoted which demonstrate that the courts realize the practical value of pasteurization in protecting the public health from milk-borne disease.

TOBEY, J. A. Pasteurization and the Courts. New Eng. J. Med. 212, 14:613 (Apr. 4), 1935.

More Uncomfortable Mortality Statistics—Though mortality rates in the 86 large cities were higher in 1934 than in 1933 or 1932, accidental deaths, tuberculosis, and the diseases of childhood are down; it is the diseases of middle life and old age that are up. A special survey in 10 cities showed the death rates to be 43 per cent higher among those families without a full-time worker than in those in which there was a full-time worker.

WIEHL, D. G. Recent Trends in Mortality in the United States. Milbank Quart. 13, 2:122 (Apr.), 1935.

Social Services Help to Maintain Health—Reporting a statement of the Minister of Health concerning the effect of social services in maintaining Great Britain's health. Despite prolonged unemployment, health in Great Britain has been maintained at a high level, as the result of the work of various agencies: health, unemployment, widows' and orphans' and old age insurance, public assistance, and public health services.

YOUNG, H. S. Social Services and Health in Great Britain. Indust. & Labour Inf. 53, 2:47 (Jan. 14), 1935.

ASSOCIATION NEWS

The Milwaukee Annual Meeting

October 7–10

Inside Information About Programs

REQUESTS for program outlines and program information are frequent in the headquarters office these days.

The Section Secretaries are busy sifting new material and front-rank speakers from the many papers offered and invited. They feel that so much refinement of their programs is possible and desirable, in order to take advantage of the best material available, that it is unwise to make exact announcements at this time.

It is possible, however, to list some of the topics with which the delegates to the 64th Annual Meeting will be concerned during the week of October 7.

Mental Hygiene has been forging ahead so steadily in interest that an entire session will be devoted to it this year for the first time. Four papers and a discussion period are planned. Mental Hygiene from the point of view of the Province, the U. S. Public Health Service, the city health department, the health officer, and the school physician will be presented by outstanding health officials and psychiatrists.

Papers on Economic Consequences of Ill Health, on Health Department Functions—preventive, nursing, medical care, dental care, hospitalization and maternity care—and the Health Department Relationship to the Activities of the Welfare Department and of the Medical Profession will make up the program of the Special Session on the health department and the social security program. The contributors here will be health officers, economists, practising physicians, welfare directors, and officers of government.

The Fifteenth Anniversary of the Association's Committee on Administrative Practice is to be commemorated by a program in which those who have been most intimately connected with its development will review its history and accomplishments, detail the present status of its work, and cast an eye ahead upon its hopes for the future. An especially interesting paper will be a prominent city health officer's evaluation of the committee's past and present activities.

Dr. E. L. Bishop, President of the A.P.H.A., and Dr. Walter E. Brown, President-Elect, are always worth listening to, speaking as they do from a wealth of practical experience and personal philosophy. Dr. Bishop will be the main speaker at the first General Session on Monday evening, October 7, and Dr. Brown at the Banquet Session on Wednesday.

Professional Education is the subject for discussion at a luncheon meeting on Wednesday. Those who attended the very successful dinner meeting under the auspices of Dr. Leathers's Committee on Professional Education at Indianapolis—a session which gathered a large and distinguished audience—know the interest that exists in the education and training of health workers. The committee is prepared this year to make some important announcements of policies. Particularly in view of the new personnel that will certainly be drawn into public health work with the passage of the Social Security Bill, the determination of what constitutes adequate preparation for a

career in public health is of paramount concern.

Another luncheon session, now traditional at Annual Meetings, is the one devoted to Diphtheria Immunization. A committee representing the Health Officers and Laboratory Sections is at work and will present a report covering practices, experiences, and results during the year.

The many allied organizations and special groups that meet with the American Public Health Association add interest and variety to the proceedings. Joint sessions are being arranged by various Sections with the American Association of School Physicians, the International Association of Dairy and Milk Inspectors, the Association of Food and Drug Officials, the Conference of State Sanitary Engineers, the American Association of State Registration Executives. The Association of Women in Public Health, Delta Omega, Johns Hopkins, Massachusetts Institute of Technology and Harvard Alumni, and the Conference of State Laboratory Directors will dine, lunch or breakfast and confer.

The International Society of Medical Health Officers, of which Dr. John P. Koehler, Chairman of the Milwaukee Local Committee, is President, promises a large dinner party on Tuesday evening to which free tickets will be distributed to several hundred delegates. The after-dinner program will be brief, but impressive.

The 10 Section programs reflect present-day attitudes and are thoroughly infiltrated with social and economic significance. The federal health program is given a large share of attention, and its possibilities and implications are thoroughly covered. Picked at random, the following of the other hundred odd subjects will indicate the breadth and scope of Section activity:

Public Health Significance of Poisonous Substances in Foods
A Planned Milk Control for State and Nation
Standard Methods for the Examination of Shellfish
An Improved Agar for Use in Making Bacterial Counts from Milk
Proposed Changes in Standard Methods for Bacteriological Examination of Milk
Whooping Cough and Measles
Mentality and Morbidity
Pneumonia as a Community Health Problem
Child Health at Different Levels
Growth and Nutrition
Health Training and Instruction in Schools
Scarlet Fever
Animal Diseases Affecting the Public Health
Recent Progress in Biological Products
Customer Demand for Vital Statistics
Sanitation in Rural and Recreational Areas
Air Conditioning and Industrial Health
Occupational Diseases
Present Status of the Vitamin B Complex
Food Advertising under the Food and Drugs Act
Maternal and Neonatal Hygiene
Adequate Health Service for the Child
Commercial Advertising's Challenge to Health Education
Community Organization for Health Education
F.E.R.A. Problems
Typhoid Carriers
Institutional Outbreaks of Pneumonia

The preliminary program will be published in full in the September *Journal*. Watch for it, but do not wait until then to make your plans to attend the 64th Annual Meeting in Milwaukee, October 7–10.

ABOUT ENTERTAINMENT

FROM Dr. John P. Koehler, Chairman of the Milwaukee Local Committee, comes the following abbreviated and, he informs us, incomplete, table of entertainment events planned for delegates to the 64th Annual Meeting:

Sunday, October 6, 3 to 5 P.M. A "Milwaukee Kermis" at the Wisconsin Club. Appropriate music will be furnished and light refreshments. Milk, tea, coffee and beer will be served.

The purpose of the Sunday afternoon party is to provide the opportunity for members

to meet local people, to renew acquaintances in the Association, and to make new friends. It will be entirely informal. The Program Committee hopes the music will be the beloved Deutsches Liederen, sung by waiters garbed to create the proper atmosphere.

Monday, October 7, 10:30 to 1 A.M. Dancing in the beautiful Ball Room of the Hotel Schroeder, following the first General Session

Tuesday, October 8, 6 to 8:30 P.M. A dinner at the Schroeder Hotel through the courtesy of a Chicago sponsor, by the International Society of Medical Health Officers to the Members of the Governing Council, attending health officers and their friends.

The attendance is limited by the capacity of the dining room, which is approximately 600. Members of the Governing Council, prominent guests and Officers of the Medical Health Officers' Society will first be supplied with tickets, and the remaining tickets will be given out on the basis of "first come, first served" at the registration desk.

Wednesday, October 9, 3:30 to 5:30 P.M. A large, general entertainment feature for all the delegates and their friends—probably a boat ride.

The Program Committee has arranged no scientific sessions for Wednesday afternoon to permit a period of relaxation and recreation.

Wednesday, October 9, 11:00 P.M. to 1:00 A.M. Dancing following the Banquet.

At various times all through the week, inspection trips will be scheduled. Visits to the County Institutions, Health Centers, Sewage Disposal Plant, certified farms, park systems, and, of course, the breweries, are planned.

The entertainment program has been arranged by Dr. Koehler's Sub-Committee on Entertainment, of which Dr. B. L. Corbett is Chairman.

RAILROADS AND HOTELS

THE railroads have granted the Association's request for reduced convention fares to Milwaukee on the identification certificate plan. Rates from various central points and full information about the use of the certificates will be published in the July *Journal.* The pink slips identifying members will be mailed in August.

Milwaukee has many fine hotels with reasonably priced accommodations. A list of them with single and double room rates will be printed in the July issue. A coupon for making reservations will also appear.

CORRECTION

ON page 342 of the March, 1935, *Journal,* in Table III of "Public Health Degrees Granted in 1934," an error was made—the dagger indicating that public health courses were discontinued in 1934 should not appear after University of Michigan. These courses are continuing.

CULTURES IN THE DIAGNOSIS OF TUBERCULOSIS

IN the December, 1934, *Journal* there was an editorial under the title "Cultures in the Diagnosis of Tuberculosis." This commented on the work of Evelyn M. Holmes, of England, as reported in a paper entitled "The Value of Culture in the Solution of Problems of Tuberculosis," in the *Journal of State Medicine* for October, 1934, page 561.

The author has asked us to publish a correction in the formula as given in the original publication, which is that the magnesium sulphate should be 0.04 per cent, instead of 0.4 per cent. The formula follows:

Potassium sulphate	0.4	per cent
Magnesium sulphate	0.04	per cent
Magnesium citrate	0.1	per cent
Asparagin	0.6	per cent
Glycerine	2.0	per cent
aq. destill		

NEW MEMBERS

IN reporting below the latest group of applicants for membership in the American Public Health Association, the Committee on Fellowship and Membership wishes to take this opportunity of recording its appreciation of the efforts of the New York State Department of Health resulting in so many applications, and to urge other state and city health commissioners to make a similar attempt to increase the number of members in the Association. As Dr. Thomas Parran, Jr., has aptly stated: "Membership in the American Public Health Association is a real asset to all of us who are in public health work as a career. The only vigor or vitality any association of this kind can have is that asserted by its membership. Each year a number of members are lost through death, resignation, etc. These vacancies must of necessity be filled from the younger and the more recent additions to the profession. It is therefore of importance that each year a definite and concerted effort be made to enroll as new members those who are interested in public health who are not already a part of this organization. It seems to me that this is a proper activity of the state and larger city departments. Certainly we should do our part to encourage all public health workers in the state to be aligned with their own national organization."

If any of our constituents are interested in helping the Association expand, the Committee on Fellowship and Membership will gladly furnish them with the necessary material and any other assistance they may require.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Charles A. Bailey, M.D., Apartado 679, Mexico, D.F., Mex., Field Director, Rockefeller Foundation

J. Douglas Barry, M.D., 205 Nelson Ave., Peekskill, N. Y., Health Officer

Angel de la Garza Brito, M.D., Ave. Alvaro Obregon 190 A, Mexico City, Mex., Supervisor General, Dept. of Health

F. F. Chaya, M.D., 22 Main St., Yorkville, N. Y., Health Officer

Roy L. Cleere, M.D., 424 State Office Bldg., Denver, Colo., Secretary and Executive Officer, Colorado State Board of Health

Dr. C. E. Elkins, 92 Andrews St., Massena, N. Y., Health Officer

Henry E. Elwood, Jr., M.D., 144 E. First St., Corning, N. Y., Health Officer

Earl H. Engel, M.D., 114 Maple St., Wyandotte, Mich., Health Officer

Daniel C. Fisher, M.D., Clarence Center, N. Y., Assistant District State Health Officer

Louis H. Fligman, M.D., 401 Power Block, Helena, Mont., Member, State Board of Health

Charles C. Gans, M.D., Community Hospital, San Mateo, Calif., Director, Public Health and Welfare, San Mateo County

Joseph P. Garen, M.D., 140 N. First St., Olean, N. Y., City Health Officer

Burton A. Hall, M.D., Oxford, N. Y., Health Officer

Edgar C. Harper, M.D., Abingdon, Va., Deputy Director of Rural Health, State Health Dept.

Charles R. Haskin, M.D., 12 Vincent Ave., Chautauqua, N. Y., Health Officer, Chautauqua Institution

George A. Hays, M.D., State Dept. of Health, Jefferson City, Mo., Director, Rural Health Work

M. R. Kukuk, M.D., 2405 Franklin Ave., Toledo, O., Lucas County Health Commissioner

Frederick S. Leeder, M.D., D.P.H., 117 Crescent St., Allegan, Mich., Director, Allegan County Health Dept.

Charles Lipsky, M.D., 162 Howard Ave., Brooklyn, N. Y., Medical Inspector, Bureau of Child Hygiene, Dept. of Health

Gregory D. Mahar, M.D., 302 City Hall, Syracuse, N. Y., Commissioner of Health

Thomas A. McGrath, M.D., 10 John St., Hoosick Falls, N. Y., Health Officer

John G. Norris, M.D., St. Joseph, La., Director, Tensas Parish Health Unit

Byron L. Pampel, M.D., Livingston, Mont., Member, State Board of Health

John M. Quinn, M.D., 41 S. Corona Ave., Valley Stream, N. Y., Health Officer

Dr. Domingo F. Ramos, Direccion de Sanidad, Havana, Cuba, Director of Sanitation

George L. Rianhard, City Hall, Coral Gables, Fla., Health Inspector

Ardeen E. Richmond, M.D., Wayland, N. Y., Health Officer

Rudolph Ruedemann, Jr., M.D., State Dept. of Health, Albany, N. Y., Medical Consultant, Division of Social Hygiene

Edwin H. Schorer, M.D., City Hall, Kansas City, Mo., Director of Public Health

Leigh A. Simpson, 11 S. 3rd St., Fulton, N. Y., Health Officer

Ralph B. Smallman, M.D., Corfu, N. Y., Health Officer

Albert F. Soch, M.D., 40 E. Main St., Fredonia, N. Y., Health Officer

Edgar E. Stewart, M.D., 25 Maple Drive, Great Neck, N. Y., Health Officer of Villages of Great Neck Estates

Sidney S. Wasserstrom, M.D., 1877 Ocean Ave., Brooklyn, N. Y., Medical Inspector, New York City Health Dept.

Joseph Weinstein, M.D., M.S.P.H., 783 Fox St., New York, N. Y., Assistant District Health Officer, New York City Health Dept.

James W. Young, M.D., 9615 Brighton Way, Beverly Hills, Calif., Assistant Health Officer

Alexander Zabin, M.D., 11 Nottingham Rd., Malverne, L. I., N. Y., Health Officer

Laboratory Section

William Antopol, M.D., Bayonne Hospital, Bayonne, N. J., Pathologist and Director of Laboratories

Joseph O. Collins, M.D., Waterbury Hospital, Waterbury, Conn., Director, Hospital Laboratory

Israel Davidsohn, M.D., 2750 W. 15th Place, Chicago, Ill., Pathologist, and Director of Laboratories, Mt. Sinai Hospital

John V. Donnet, M.D., 57 West 57 St., New York, N. Y., Member of Committee on Clinical and Pathological Laboratories

Frederick Eberson, M.D., Ph.D., Dept. of Public Health, San Francisco, Calif., Epidemiologist, Bureau of Communicable Diseases

John J. Engelfried, M.S.P.H., University Hospital, Ann Arbor, Mich., Student, Contagious Laboratories

Maxwell J. Fein, M.D., 50 Greene Ave., Brooklyn, N. Y., Pathologist, U. S. Army

Patricia Fleming, B.S., State Dept. of Public Health, Springfield, Ill., Bacteriologist, Division of Laboratories

E. D. Furrer, M.D., 130 E. Broadway, Eugene, Ore., City Bacteriologist

McLeod Gillies, M.D., Mountain State Hospital, Charleston, W. Va., Laboratory

Alfred E. A'C. Hudson, D.Sc., Lee Memorial Hospital, Fort Myers, Fla., Director of Laboratories

Clarence M. Hyland, M.D., 4614 Sunset Blvd., Los Angeles, Calif., Director of Laboratories, Children's Hospital

Joseph A. Kasper, M.D., Herman Kiefer Hospital, Detroit, Mich., Director, Bureau of Laboratories, Dept. of Health

Ludwig Lindberg, M.D., 1407 S. Hope St., Los Angeles, Calif., Pathologist

Dr. Thomas B. Magath, Mayo Clinic, Rochester, Minn., Division of Clinical Pathology, Dept. of Parasitology

George R. Moffitt, Harrisburg Hospital, Harrisburg, Pa., City Bacteriologist and Chemist

Gertrude Moore, M.D., 2404 Broadway, Oakland, Calif., President-Secretary, Western Laboratories

Frederick W. Shaw, M.D., Medical College of Virginia, Richmond, Va., Professor of Bacteriology and Parasitology

Philip L. Varney, Ph.D., Washington University School of Medicine, St. Louis, Mo., Instructor, Dept. of Bacteriology and Public Health

Vital Statistics Section

May A. Burgess, Ph.D., 4615 Livingston Ave., New York, N. Y., Volunteer study in field of growth statistics

Ernest G. Carscallen, A.B., 903 N. Broadway, Baltimore, Md., Student Assistant, Dept. of Biostatistics, Johns Hopkins School of Hygiene and Public Health

Public Health Engineering Section

John C. Cochrane, Jr., 605 Hardy & Hayes Bldg., Pittsburgh, Pa., Engineer, Wallace & Tiernan Co.

Thomas M. Riddick, M.S., 1920 Osborne

Place, New York, N. Y., Sanitary Engineer
Embert H. Sprague, B.S., University of Maine, Orono, Me., Professor of Sanitary Engineering

Industrial Hygiene Section

Elmer G. Balsam, M.D., Box 1324, Billings, Mont., Member, State Board of Health
William B. Fulton, M.D., Dept. of Labor & Industry, Harrisburg, Pa., Chief, Industrial Hygiene, Bureau of Industrial Standards
S. Edward King, M.D., 33 Fifth Ave., New York, N. Y., Medical Director
Fredia Patten, R.N., Southern Alkali Corp., P. O. Box 1591, Corpus Christi, Tex., Industrial Nurse
Max Trumper, Ph.D., 920 Medical Arts Bldg., Philadelphia, Pa., Consultant in Industrial Toxicology

Food and Nutrition Section

Robert McD. Allen, 122 Hudson St., New York, N. Y., President, Vegex Inc.

Child Hygiene Section

Edith M. Buyer, M.D., Albert Leonard Junior High School, New Rochelle, N. Y., School Medical Supervisor, Board of Education
Jean M. Henry, Wellington Hotel, Albany, N. Y., Consultant Nurse

Public Health Education Section

Edwin C. Braynard, M.D., 47 Highland Rd., Glen Cove, N. Y., Health Officer, East Hills, N. Y.
Eugene A. Fierro, M.D., 320 E. 57 St., New York, N. Y., Instructor in Public Health, New York Homeopathic Medical College & Flower Hospital
Hugh G. Henry, M.D., Germantown, N. Y., Prenatal Clinics and Luetic Clinics, Columbia County Dept. of Health
Irwin I. Lubowe, M.D., 505 West End Ave., New York, N. Y., Practising Medicine
Eunice I. Nickerson, C.P.H., 488 Whitney Ave., New Haven, Conn., Research Assistant in Public Health, Yale University
James H. Stone, C.P.H., Williamsburg, Va., Instructor in Bacteriology and Public Health, College of William & Mary

Public Health Nursing Section

Mary B. DeLas, Indianola, Miss., Public Health Nurse
Bertha Jenkins, R.N., Saanich Health Dept., Royal Oak, B.C., Canada, Supervisor, Health Dept.
Mary E. Wiseman-Herndon, R.N., Perry, Fla., Public Health Nurse, Taylor County

Epidemiology Section

Harry L. Chant, M.D., 4 Jewett Parkway, Buffalo, N. Y., Epidemiologist-in-training, State Dept. of Health
Samuel Hyman, M.D., 556 Park Ave., Albany, N. Y., Epidemiologist-in-training, State Dept. of Health
Mildred E. Shellig, M.D., 395 Myrtle Ave., Albany, N. Y., Epidemiologist-in-training, State Dept. of Health
Dr. Frutos Solon Nunez, San Jose, Costa Rica, Minister of Health

Unaffiliated

Margaret Bullowa, 62 W. 87 St., New York, N. Y., Medical Student, New York University Medical College
J. Louis Neff, 1527 Franklin Ave., Mineola, N. Y., Executive Secretary, Nassau County Medical Society

CLOSING DATE FOR FELLOWSHIP APPLICATIONS

THE Committee on Fellowship and Membership wishes to announce that August 1 is the closing date for accepting Fellowship applications for action at the Milwaukee Annual Meeting. Eligible members who desire to apply for Fellowship this year are requested to submit their applications to the committee as much in advance of August 1 as possible.

Report on a Meeting to Discuss Standard Methods for the Examination of Shellfish

AT the request of C. A. Perry, Referee for the Laboratory Section on Laboratory Methods for the Examination of Shellfish, a conference was called at the Army Medical Center in Washington, D. C., on April 18, 1935. The following were present: L. M. Fisher, Chairman of the Committee on Shellfish of the Public Health Engineering Section, A. C. Hunter, representative of the Food and Nutrition Section, A. P. Hitchens, Chairman of the Coördinating Committee on Standard Methods and R. S. Breed, Chairman of the Committee for the Examination of Dairy and Food Products for the Laboratory Section, W. R. Berry, R. Messer, R. E. Tarbett, and others interested in the sanitary control of shellfish.

Under the leadership of Dr. Perry there was a full discussion of the nature of the control that should be exercised over shellfish production areas; the type of laboratory examination that should be carried out for oysters in the shell, shucked oysters, and other shellfish; and of the type of examination that should be made on oysters after they are received in consuming centers.

It was pointed out that in the preparation of any comprehensive report on methods of controlling the sanitary condition of oysters and other shellfish there should be a discussion of the biology of shellfish so far as it has a bearing on the sanitary condition of the water in which these shellfish live. There was a general feeling that if the entire shell contents of the oyster are used as a source of the sample the results of the laboratory examinations would be more valuable, and that the laboratory methods should be such as would distinguish between *Escherichia coli* and other members of the colon group.

It was pointed out that there was genuine need for the preparation of a comprehensive report on shellfish examinations which would cover not only pertinent facts regarding the biology of shellfish and the sanitary condition of production areas, but also laboratory methods for the examination of oysters and other shellfish as shipped, and after receipt in consuming centers. It was not felt that the information at hand justified the fixation of definite sanitary standards. Objection was made to the fixation of absolute standards by the American Public Health Association on the ground that the existence of definite standards might embarrass official control agencies in legal procedures. On the other hand, all agreed that limits of pollution could be given for oysters and oyster waters in the form of carefully phrased recommendations.

Meeting of the Committee on Standard Methods for the Examination of Dairy and Food Products

THE Laboratory Section Committee covering Standard Methods for the Examination of Dairy Products met April 8, 1935, at Geneva, N. Y., with the following referees present: F. C. Blanck, Referee for Chemical Methods, A. H. Robertson, Referee for Methods of Counting Bacteria, Mac H. McCrady, Referee for Methods of Detecting Specific Types of Bacteria, G. J. Hucker, Associate Referee for Methods of Identifying Streptococci, R. S. Breed, Chairman.

There was some discussion over the need for methods for determining total solids in plain ice cream and for determining small amounts of nutritionally important minerals in milk. Dr. Blanck, speaking as President of the Association of Official Agricultural Chemists, and as a member of the committee, expressed the satisfaction of the A.O.A.C. with the present arrangement regarding the publication of *Standard Methods of Milk Analysis*.

Discussion developed the need for broadening the scope of the present report to cover the examination of dairy products other than milk and this led to the suggestion that the title of the next edition of the report should be "Standard Methods for the Examination of Dairy Products" rather than "Standard Methods of Milk Analysis." Only methods of value in official control work are to be included, however, in order that the report may continue as authoritative in its own field.

Consideration was given to methods of securing more satisfactory incubation procedures in public health laboratories that are using the standard agar plate count, and to the problems that will arise if an agar of more satisfactory composition is substituted for the meat extract-peptone agar now in use.

It was reported that only minor criticisms and suggestions have been received thus far regarding the methods suggested by W. A. Hagan and I. F. Huddleson for detecting the presence of tubercle and Bang's disease organisms in milk. The section in the present report giving tentative methods for the detection of organisms of the colon group was discussed from various standpoints. Research work is showing more clearly than ever that the presence of organisms of the colon group in milk and dairy products does not have the significance that the presence of organisms of the colon group in water and sewage has. Effective use is being made of tests for organisms of this group in detecting inefficient pasteurization and in the control of recontamination of milk during the bottling process.

Through A. H. Robertson, who is also Chairman of the Committee on Bacteriological Methods of the International Association of Dairy and Milk Inspectors, a questionnaire covering the new ice cream section of the *Standard Methods of Milk Analysis* is being sent to the list of individuals and laboratories interested in this type of work that is maintained by the American Public Health Association.

Committee on Professional Education Meeting

A MEETING of the Committee on Professional Education was held in New York on May 4. This committee is one of the Five Standing Committees of the Association and is charged with carrying out studies for development of standards for professional education in public health work.

The committee and its various subcommittees have been giving consideration to the problem of educational qualifications of health officers, public health engineers, sanitarians, and public health nurses.

A draft of the Second Report on the Education and Qualifications of Health Officers was circulated to a list of about 200 members of the Association, and comments were received from 75, indicating the widespread interest in this subject. It was particularly significant to note the thoughtful consideration which the report provoked and the helpful suggestions made by many of the commentators.

Committee reports were unanimously adopted bearing on the education of health officers and public health engineers, and a report on the educational qualifications of sanitarians was brought up to the point of final revision. Progress reports were received from other sub-committees who are interested in different professional groups, including vital statisticians, health educators, and public health nurses. These reports will be presented through the Executive Board to the Governing Council at the Annual Meeting.

It was reported by the Sub-Committee on the Training of Undergraduates in Medical Schools that visits are now being made by representatives of leading medical colleges to the departments of preventive medicine of selected schools throughout the country, giving an opportunity for the exchange of ideas, methods of presentation of material, and suitable technic for teaching preventive medicine in medical schools.

The committee is planning to hold a special luncheon session at the Milwaukee Annual Meeting, and an interesting program is being developed. It is felt that the work of this committee is of such importance to the future of public health work that opportunity should be given to the membership to familiarize itself with its activities.

It is believed that the steps taken at the May meeting were highly important, reflecting as they do the long continued interest in this field by the American Public Health Association, and the intensive review of professional education given by a large number of specially qualified members of the Association.

NEWS FROM THE FIELD

DR. REYNOLDS NEW SURGEON GENERAL OF ARMY

COLONEL Charles R. Reynolds, Surgeon of the Army's Second Corps Area, at Governors Island, N. Y., was nominated by President Roosevelt for Surgeon General of the Army, with the rank of major general. He will succeed Major General Robert U. Patterson, whose term expires June 1.

Colonel M. A. Shockley, Commander of Letterman General Hospital at the Presidio in San Francisco, was nominated by the President as Assistant Surgeon General with the rank of brigadier general.

ARIZONA ASSOCIATION ELECTS OFFICERS

AT its meeting on April 24, the Arizona Public Health Association elected the following officers:

President—A. N. Crain, M.D., Phoenix

First Vice-President—Lydia Pothoff, Nogales

Second Vice-President—F. C. Roberts, Jr., Phoenix

Secretary-Treasurer—Jane H. Rider, C.E., Tucson

The next annual meeting of this organization will be held in April, 1936, at Tucson, Ariz.

DRINKING WATER

TRAVELERS will be interested to know that the sources of drinking and culinary water used on interstate railroads, buses, vessels, and airplanes are inspected and certified by the U. S. Public Health Service. Ninety-four per cent of these supplies were inspected and certified during the year. It was found necessary to prohibit the use of 28 of these supplies.—*New York State J. Med.* 35, 3:116 (Feb. 1), 1935.

MARYLAND-DELAWARE SEWERAGE CONFERENCE

AT the Ninth Annual Conference of the Maryland-Delaware Water and Sewerage Association, which was held at the State House, Annapolis, May 16–17, Prevention of water pollution, Comprehensive planning for water supply and sewerage systems, and other engineering problems of special concern to state, city, and county departments of health were discussed.

PENNSYLVANIA SEWAGE ASSOCIATION MEETS

THE Ninth Annual Conference of the Pennsylvania Sewage Works Association will be held at State College, Pa., June 24–26. Numerous papers of importance will be presented.

FREDERICK L. HOFFMAN RETIRES

AFTER 42 years of service with the Prudential Insurance Company of America, during which time he acquired international recognition as a foremost statistician, Frederick L. Hoffman, LL.D., a member for 28 years and a Charter Fellow of the A.P.H.A., was retired from active duty on May 1.

Dr. Hoffman, who was born in Varel, Grand Duchy of Oldenburg, Germany, on May 2, 1865, came to this country when he was 19 and after a brief mercantile experience became associated with the Metropolitan Life Insurance Company. In 1891, he became affiliated with the Life Insurance Company of Virginia and 2 years later became Statistical Assistant in the Prudential's Actuarial Department. His literary contributions to insurance, statistics, and social science have numbered scores and he has appeared as an authoritative

lecturer on insurance and public health subjects before leading universities throughout the country, some of his notable works being devoted to cancer, tuberculosis, statistics, malaria, radium necrosis (mesothorium), earthquake hazards and aviation.

In 1934, Dr. Hoffman, with the consent of the Prudential, presented to the Cancer Research Laboratories of the University of Pennsylvania Graduate School of Medicine his library on that subject and it was hailed as a notable event in the medical history of Philadelphia in an official statement by the *Pennsylvania Gazette*.

Dr. Hoffman does not intend abruptly to abandon his work. After a needed vacation he will continue his research on cancer, maintaining an office in the Laboratories of the University of Pennsylvania.

SUMMER TOUR

THE Health Section of the World Federation of Education Associations is arranging a European travel and study tour in connection with the Federation meeting at Oxford, England, August 10–17. Leaving New York June 29, the tour will visit France, Switzerland, Germany, Poland, Russia, Finland, Sweden, Denmark, and England. The group will meet leaders in school health in these countries.

Write for information to Professor C. E. Turner, Massachusetts Institute of Technology, Cambridge, Mass.

RESIGNATION OF MR. KINGSBURY

JOHN A. Kingsbury, LL.D., Fellow and Life Member, American Public Health Association, has resigned as Secretary of the Milbank Memorial Fund of New York. Mr. Kingsbury has served as Secretary with the Fund since 1922 and for the last year has been a member of the Board of Directors of the Fund. During his administration a very definite trend of increased interest toward public health activities has been noted and there has been created a technical staff of national distinction. During Mr. Kingsbury's tenure, Edgar Sydenstricker became Director of Research. I. S. Falk, Ph.D., has for several years been a member of the staff. In addition to the well known rural, city, and metropolitan health demonstrations conducted by the Fund, there have been numerous studies of public health practice with special reference to the measurement of results to be obtained from public health service. The Fund was a large contributor to the study of the Committee on the Costs of Medical Care and, since the report of this committee, has continued an analysis of the data with special reference to the bearing of these data on sickness insurance. Mr. Kingsbury has been responsible for the publication by the Fund of the Studies on Medical Care in Europe by Sir Arthur Newsholme, and with Sir Arthur, Mr. Kingsbury was co-author of the work, *Red Medicine*.

FRANKLIN H. MARTIN

FRANKLIN H. Martin, M.D., LL.D., D.Sc., D.P.H., distinguished in American medicine as a surgeon, educator, author, and organizer of unusual resourcefulness, died recently in Phoenix, Ariz., at the age of 78.

He was founder of *Surgery, Gynecology and Obstetrics*. Dr. Martin was a member of numerous professional organizations in this country and honorary fellow of medical and surgical societies of several South American countries. In recognition of his services, he received awards from the United States, England, and Italy.

His contributions to medical literature include *Fibroid Tumors of the Uterus, Treatise on Gynecology*, and *South America from a Surgeon's Point of View*. He was also author of a monograph, *Australia and New Zealand*. His autobiography was published

under the title, "Joy of Living," in 1933.

FIELDING HUDSON GARRISON

FIELDING HUDSON GARRISON, Colonel U. S. Army, Retired, of Baltimore, Md., most eminent American medical historian, died April 18, 1935, at the age of 64.

Col. Garrison was Assistant Librarian at the Army Medical Library in Washington for 33 years, from 1889 to 1922. He served in the Philippines from 1922 to 1924, and in 1925 he was appointed Consulting Librarian to the New York Academy of Medicine. In 1930 he was appointed Librarian of the Welch Medical Library at the Johns Hopkins University School of Medicine, and also resident lecturer in the history of medicine.

He was co-editor of the *Index Medicus* at the Surgeon General's Library from 1903 to 1912, and editor from 1912 to 1927. His Book *An Outline of Medical History,* is recognized as a classic throughout the civilized world. He was the author also of numerous monographs.—*J.A.M.A.*, 104, 17:1540 (Apr. 27), 1935.

MIDWIFERY PRACTICE IN NEW YORK

FOLLOWING a conference with New York Health Commissioner John L. Rice, Hospital Commissioner S. S. Goldwater announced—the first week of May—the discontinuance of the Bellevue Training School for Midwives.

If the present trend in the reduction of midwife practice continues, it is stated, the proportion of births attended by midwives will amount to less than 2 per cent 10 years from now. In 1934 midwives attended only 5,000 of the 101,239 births in the City of New York, less than 5 per cent, representing a decline since 1914 of 35.3 per cent. The number of midwives licensed to practice in New York City reached a maximum of 1,799 in 1916, whereas now there are only 700, of whom 30–40 per cent are reported inactive.

TOURISTS IN MEXICO

WHILE in Mexico City recently, J. C. Geiger, M.D., F.A.P.H.A., of the Department of Public Health of San Francisco, made a study of requirements made by the authorities in Mexico of tourists.

He is preparing a program related to the requirements of tourists between the United States and Mexico, which will be submitted for the approval of the health authorities of both countries.

DIABETIC PATIENTS CENSUS

THE New York City Department of Health is making an effort to place all persons with diabetes under the care of licensed physicians, and has for that reason sent a letter to all physicians in the city asking them to inform the department of the number of diabetic patients under their care.

Health Commissioner John L. Rice states that many diabetic patients are using trick diets and harmful nostrums, alleged substitutes for insulin. Information assembled by the New York Diabetes Association indicates that there are as many as 100,000 diabetic persons in the city.

NUTRITION PROJECT IN MICHIGAN

THE Michigan State Emergency Welfare Relief Commission, the Children's Fund of Michigan, and the State Department of Health are coöperating in a program to prevent an increase in scurvy and other dietary deficiency diseases among infants and young children, and to assist in making necessary medical care available for needy prospective mothers. The Michigan branch of the American Academy of Pediatrics is acting in an advisory capacity. Members serve as consultants to work with

the county medical societies and nurses in their respective districts.

The project will continue over a period of 6 months. According to the state medical journal, the work is based on home calls to families on relief or near the borderline in which there are prospective mothers or young children. The expectant mother receives suggestions and, in families with infants, special attention is paid to dietary supervision to guard against scurvy and rickets.

The project was begun at the suggestion of Dr. Thomas B. Cooley, of Detroit, President of the American Academy of Pediatrics. — *J.A.M.A.*, April 27, 1935.

NEW CANCER JOURNAL IN BUDAPEST

ACTA Cancerologica is the title of a new publication dealing with all aspects of cancer. It is published in Budapest and is edited by Dr. Gereb, assisted by Professor Ferdinand Blumenthal, now director of the Cancer Institute in Belgrade. Papers will be published in German, French, and English.

NEW JOURNAL ON IMMUNOLOGY

THE first issue of the *Revue d'immunologie*, Paris, appeared in January, 1935. The editors, all well known in the field of immunology, are Professors Robert Debré, G. Ramon, and Pasteur Vallery-Radot, the grandson of Louis Pasteur.

NEW HEALTH DISTRICT IN NEW YORK

A NEW health district has been established in Tompkins County, N. Y., with headquarters at Ithaca, as a coöperative project of the U. S. Public Health Service, the New York State Department of Health, and the Tompkins County Development Association.

Dr. Vivian A. Van Volkenburgh, F.A.P.H.A., formerly associate in epidemiology at Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md., is head of the staff.

The new district is the first to be developed under the plan for federal aid to rural areas for health work.— *J.A.M.A.*, April 27, 1935.

PUBLIC RESPONSIBILITY FOR PUBLIC AND PERSONAL HEALTH

AN integrated plan of public health, public medical service and private practice was urged as preferable to health insurance for New York State by Thomas Parran, Jr., M.D., State Commissioner of Health, in the 1935 Biggs Memorial Lecture delivered on May 2 at the New York Academy of Medicine. The thesis of Dr. Parran's talk was the health center plan devised by Dr. Biggs and urged by him upon several sessions of the Legislature from 1919 until his death. This plan contemplated a public medical and health service to be administered by local health departments under state supervision and aid, combined with an improved, private practice in a logical system for all citizens in need of such service. Some of the major points of the lecture are summarized below:

> For a sizable proportion of the population, socialized medical care is an accomplished fact, but much of it is at the expense of the doctor and therefore less equitable than when financed by public taxes. . . .
>
> A united attack by private physicians and public health authorities should be made against the catastrophic and chronic diseases of the poorly-paid employed classes who far outnumber in the population the one-seventh now on relief. The majority of these persons are able and willing to bear the cost of private medical care for illnesses which can be treated at home or in the doctor's office . . .
>
> The whole effort for human betterment has been handicapped because in this nation medicine is not now a vital force in the councils of government. Through the integration and union of needed preventive and curative medical efforts and through the pro-

vision of public medical care, as a matter of right and not of charity for those in need of it, medicine can assume its rightful position of leadership in humanizing society.

The most vocal members of the medical profession up to now, however, have been filled with the fighting spirit of the guilds and trade unions. They have been concerned primarily with protecting the *status quo* and in opposing so-called inroads upon their traditional prerogatives. But the rank and file of medical men have quietly and patiently been carrying the load of unpaid service for their unfortunate fellow men. They could do this easily enough when medical charity was required for no more than 2 per cent of the average practice. Now, unfortunately, many a formerly prosperous doctor has been almost overwhelmed by the need for free service among his patients. Yet still these unsung heroes of medicine have carried on. . . .

The groups needing public care for costly illness might be defined as including all manual laborers and their families, all persons participating in the proposed old age annuity plan or unemployment insurance and all others having an annual income of less than $2,500. In determining the diseases and conditions which should be cared for at public expense, consideration must be given to the cost of treatment and the extent to which the particular disease or condition is "endowed with a public interest." The types of medical care which should be provided at public expense in whole or in part for the lower economic groups of the population he outlined as: facilities for accurate diagnosis, obstetrical care, hospital care, home nursing and treatment of chronic diseases. . . .

To provide an adequate and decent medical service to our public charges and to extend to the low-income group treatment for the catastrophic and chronic illnesses requiring costly diagnosis and long hospitalization is a necessary public health obligation. "I believe that in the long range it will be financially profitable, through the lightening of our ever-growing load of unemployables. And, I believe that Dr. Biggs would stir anew to the spirit of his thesis of 1882—'There are other considerations far higher than the financial which render government action in regard to the public health imperative.'"

Dr. Parran stated that, in his opinion, it would be desirable to unify under health departments, state and local, medical functions now performed by welfare officers.

Biggs had an orderly and logical mind. These qualities tempered his idealism and his professional vision. "Think things through" was his motto. No one before or since his time has combined with such idealism so practical a program for meeting the public health and medical needs of his state. Had his program of 1920 been adopted in New York State and carried out in the several communities, we should have today no such serious problems in medical care and medical economics as now confront us.—

Health News, New York State Dept. of Health, 12, 19 (May 13), 1935.

PERSONALS

GEORGE S. KELLEY, of New York, was awarded a certificate of merit "for reducing the dangers of silicosis, the dust hazard," at the Franklin Institute Meeting held in Philadelphia on May 16.

DR. DOYLE W. FULMER, of Little Rock, Ark., has been appointed Director of the Saline County Health Unit, succeeding Dr. Cad A. Henry, resigned.

LAWRENCE JACKSON SMITH, M.D., of Apponaug, R. I., is the newly appointed Health Officer of Springfield, Mass. It is announced that Springfield's health department will now be supervised by a public health council, in place of the former board of health.

DR. EDWIN HENRY SCHORER, of Kansas City, Mo., member A.P.H.A., has been appointed Health Commissioner of Kansas City, succeeding the late Jabez N. Jackson.

ALBERT GRANT FLEMING, M.D., of Montreal, Que., Life Member A.P.H.A., has been appointed secretary to the Health Insurance Committee of the British Columbia College of Physicians and Surgeons.

DR. JAMES H. SHRADER, F.A.P.H.A., formerly with the Research Laboratories of National Dairy Products Corporation, Inc., Baltimore, Md., has been transferred to the Sealtest

System Laboratories, Inc., with offices at 120 Broadway, New York.

DR. ANNE L. BRADY has been appointed City Health Officer of Ross, Calif., to succeed Dr. George H. Willcutt.

DR. CLARENCE E. SIMONDS has been appointed Health Officer of Windham, Conn., succeeding the late Dr. Frederick E. Wilcox.

DEATHS

DR. REUBEN HAYES IRISH, of Troy, N. Y., medical diagnostician and tuberculosis specialist, died of a heart attack April 30, while engaged in clinical work at a public school. He was a member of the board of managers of Pawling Sanitarium and of the staffs of the Leonard and Samaritan Hospitals, of Troy.

DR. JOSEPH HENSCHEL, president of the Bronx Borough Medical Society and a trustee of the New York Physical Therapy Society, died May 1 while delivering a lecture on physical therapy at the New York Academy of Medicine. He was a director of physical therapy at the Bronx Hospital and at St. Elizabeth's Hospital, of New York.

WILLIAM FOWKE RAVENEL PHILLIPS, of Washington, D. C., died February 16.

CONFERENCES

June 2–6, American Federation of Organizations for the Hard of Hearing. Cincinnati, Ohio.

June 3–5, Twenty-Fourth Annual Meeting, Canadian Public Health Association, in conjunction with the Ontario Health Officers' Association, Canadian Tuberculosis Association, and Canadian Social Hygiene Council. Royal York Hotel, Toronto.

June 4–9, Annual Meeting, Royal Institute of Health, Harrogate, England.

June 7, 8, American Academy of Pediatrics, New York, N. Y.

June 9–11, Medical Women's National Association, Atlantic City, N. J.

June 9–15, National Conference of Social Work, Montreal, Canada.

June 10, 11, American Association of Medical Milk Commissions, Atlantic City, N. J.

June 10–14, Annual Meeting of the American Medical Association, Atlantic City, N. J.

June 11, American Heart Association, Atlantic City, N. J.

June 12, 13, Annual Meeting, Academy of Physical Medicine, Atlantic City, N. J.

June 14, 15, Conference of State and Provincial Health Authorities of North America, Atlantic City, N. J.

June 17, 18, State and Territorial Health Officers, Washington, D. C.

June 17–19, Medical Library Association, Rochester, N. Y.

June 17–19, Ninth Annual Iowa Conference on Child Development and Parent Education, Iowa City, Iowa.

June 17–19, Semi-Annual Meeting, American Society of Heating and Ventilating Engineers, Royal York Hotel, Toronto, Ont., Can.

June 19–22, Eighth Health Education Conference of the American Child Health Association, Iowa City, Iowa.

June 23–26, International Congress on Housing, Prague, Czechoslovakia.

June 24–26, Ninth Annual Conference of the Pennsylvania Sewage Works Association, State College, Pa.

June 24–27, Annual Meeting of the National Tuberculosis Association, Saranac Lake, N. Y.

June 24–29, Summer Meeting of the American Association for the Advancement of Science and Associated Societies, Minneapolis, Minn.

June 30–July 5, National Education Association, Denver, Colo.

July 1–3, Annual Meeting of the Montana State Medical Association, in conjunction with Sixth Annual Meet-

American Journal of Public Health

And *The Nation's Health*

Volume 25 — July, 1935 — Number 7

Milk-Borne Streptococcic Infection
NEWITT, GLASSEN and PRYER

Modification of Loeffler's Medium
LAYBOURN

Public Health Expenditures
WALKER

Meningitis and Typhoid Fever in the C.C.C.
COX
LULL

Household Use of Milk
EGBERT

Sixty-Fourth Annual Meeting, Milwaukee, October 7-10, 1935
Hotels and Railroad Rates

Published by the

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50 West 50th Street, New York, N. Y.

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A NEW health district has been established in Tompkins County, N. Y., with headquarters at Ithaca, as a coöperative project of the U. S. Public Health Service, the New York State Department of Health, and the Tompkins County Development Association.

Dr. Vivian A. Van Volkenburgh, F.A.P.H.A., formerly associate in epidemiology at Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md., is head of the staff.

The new district is the first to be developed under the plan for federal aid to rural areas for health work.— *J.A.M.A.*, April 27, 1935.

PUBLIC RESPONSIBILITY FOR PUBLIC AND PERSONAL HEALTH

AN integrated plan of public health, public medical service and private practice was urged as preferable to health insurance for New York State by Thomas Parran, Jr., M.D., State Commissioner of Health, in the 1935 Biggs Memorial Lecture delivered on May 2 at the New York Academy of Medicine. The thesis of Dr. Parran's talk was the health center plan devised by Dr. Biggs and urged by him upon several sessions of the Legislature from 1919 until his death. This plan contemplated a public medical and health service to be administered by local health departments under state supervision and aid, combined with an improved, private practice in a logical system for all citizens in need of such service. Some of the major points of the lecture are summarized below:

> For a sizable proportion of the population, socialized medical care is an accomplished fact, but much of it is at the expense of the doctor and therefore less equitable than when financed by public taxes. . . .
>
> A united attack by private physicians and public health authorities should be made against the catastrophic and chronic diseases of the poorly-paid employed classes who far outnumber in the population the one-seventh now on relief. The majority of these persons are able and willing to bear the cost of private medical care for illnesses which can be treated at home or in the doctor's office . . .
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> The whole effort for human betterment has been handicapped because in this nation medicine is not now a vital force in the councils of government. Through the integration and union of needed preventive and curative medical efforts and through the pro-

vision of public medical care, as a matter of right and not of charity for those in need of it, medicine can assume its rightful position of leadership in humanizing society.

The most vocal members of the medical profession up to now, however, have been filled with the fighting spirit of the guilds and trade unions. They have been concerned primarily with protecting the *status quo* and in opposing so-called inroads upon their traditional prerogatives. But the rank and file of medical men have quietly and patiently been carrying the load of unpaid service for their unfortunate fellow men. They could do this easily enough when medical charity was required for no more than 2 per cent of the average practice. Now, unfortunately, many a formerly prosperous doctor has been almost overwhelmed by the need for free service among his patients. Yet still these unsung heroes of medicine have carried on. . . .

The groups needing public care for costly illness might be defined as including all manual laborers and their families, all persons participating in the proposed old age annuity plan or unemployment insurance and all others having an annual income of less than $2,500. In determining the diseases and conditions which should be cared for at public expense, consideration must be given to the cost of treatment and the extent to which the particular disease or condition is "endowed with a public interest." The types of medical care which should be provided at public expense in whole or in part for the lower economic groups of the population he outlined as: facilities for accurate diagnosis, obstetrical care, hospital care, home nursing and treatment of chronic diseases. . . .

To provide an adequate and decent medical service to our public charges and to extend to the low-income group treatment for the catastrophic and chronic illnesses requiring costly diagnosis and long hospitalization is a necessary public health obligation. "I believe that in the long range it will be financially profitable, through the lightening of our ever-growing load of unemployables. And, I believe that Dr. Biggs would stir anew to the spirit of his thesis of 1882—'There are other considerations far higher than the financial which render government action in regard to the public health imperative.'"

Dr. Parran stated that, in his opinion, it would be desirable to unify under health departments, state and local, medical functions now performed by welfare officers.

Biggs had an orderly and logical mind. These qualities tempered his idealism and his professional vision. "Think things through" was his motto. No one before or since his time has combined with such idealism so practical a program for meeting the public health and medical needs of his state. Had his program of 1920 been adopted in New York State and carried out in the several communities, we should have today no such serious problems in medical care and medical economics as now confront us.—

Health News, New York State Dept. of Health, 12, 19 (May 13), 1935.

PERSONALS

GEORGE S. KELLEY, of New York, was awarded a certificate of merit "for reducing the dangers of silicosis, the dust hazard," at the Franklin Institute Meeting held in Philadelphia on May 16.

DR. DOYLE W. FULMER, of Little Rock, Ark., has been appointed Director of the Saline County Health Unit, succeeding Dr. Cad A. Henry, resigned.

LAWRENCE JACKSON SMITH, M.D., of Apponaug, R. I., is the newly appointed Health Officer of Springfield, Mass. It is announced that Springfield's health department will now be supervised by a public health council, in place of the former board of health.

DR. EDWIN HENRY SCHORER, of Kansas City, Mo., member A.P.H.A., has been appointed Health Commissioner of Kansas City, succeeding the late Jabez N. Jackson.

ALBERT GRANT FLEMING, M.D., of Montreal, Que., Life Member A.P.H.A., has been appointed secretary to the Health Insurance Committee of the British Columbia College of Physicians and Surgeons.

DR. JAMES H. SHRADER, F.A.P.H.A., formerly with the Research Laboratories of National Dairy Products Corporation, Inc., Baltimore, Md., has been transferred to the Sealtest

System Laboratories, Inc., with offices at 120 Broadway, New York.

DR. ANNE L. BRADY has been appointed City Health Officer of Ross, Calif., to succeed Dr. George H. Willcutt.

DR. CLARENCE E. SIMONDS has been appointed Health Officer of Windham, Conn., succeeding the late Dr. Frederick E. Wilcox.

DEATHS

DR. REUBEN HAYES IRISH, of Troy, N. Y., medical diagnostician and tuberculosis specialist, died of a heart attack April 30, while engaged in clinical work at a public school. He was a member of the board of managers of Pawling Sanitarium and of the staffs of the Leonard and Samaritan Hospitals, of Troy.

DR. JOSEPH HENSCHEL, president of the Bronx Borough Medical Society and a trustee of the New York Physical Therapy Society, died May 1 while delivering a lecture on physical therapy at the New York Academy of Medicine. He was a director of physical therapy at the Bronx Hospital and at St. Elizabeth's Hospital, of New York.

WILLIAM FOWKE RAVENEL PHILLIPS, of Washington, D. C., died February 16.

CONFERENCES

June 2–6, American Federation of Organizations for the Hard of Hearing, Cincinnati, Ohio.

June 3–5, Twenty-Fourth Annual Meeting, Canadian Public Health Association, in conjunction with the Ontario Health Officers' Association, Canadian Tuberculosis Association, and Canadian Social Hygiene Council. Royal York Hotel, Toronto.

June 4–9, Annual Meeting, Royal Institute of Health, Harrogate, England.

June 7, 8, American Academy of Pediatrics, New York, N. Y.

June 9–11, Medical Women's National Association, Atlantic City, N. J.

June 9–15, National Conference of Social Work, Montreal, Canada.

June 10, 11, American Association of Medical Milk Commissions, Atlantic City, N. J.

June 10–14, Annual Meeting of the American Medical Association, Atlantic City, N. J.

June 11, American Heart Association, Atlantic City, N. J.

June 12, 13, Annual Meeting, Academy of Physical Medicine, Atlantic City, N. J.

June 14, 15, Conference of State and Provincial Health Authorities of North America, Atlantic City, N. J.

June 17, 18, State and Territorial Health Officers, Washington, D. C.

June 17–19, Medical Library Association, Rochester, N. Y.

June 17–19, Ninth Annual Iowa Conference on Child Development and Parent Education, Iowa City, Iowa.

June 17–19, Semi-Annual Meeting, American Society of Heating and Ventilating Engineers, Royal York Hotel, Toronto, Ont., Can.

June 19–22, Eighth Health Education Conference of the American Child Health Association, Iowa City, Iowa.

June 23–26, International Congress on Housing, Prague, Czechoslovakia.

June 24–26, Ninth Annual Conference of the Pennsylvania Sewage Works Association, State College, Pa.

June 24–27, Annual Meeting of the National Tuberculosis Association, Saranac Lake, N. Y.

June 24–29, Summer Meeting of the American Association for the Advancement of Science and Associated Societies, Minneapolis, Minn.

June 30–July 5, National Education Association, Denver, Colo.

July 1–3, Annual Meeting of the Montana State Medical Association, in conjunction with Sixth Annual Meet-